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Iodine in Thyrotoxic Surgery

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THE advent of iodine in thyrotoxic surgery has been a great boon to the surgeon as well as to the patient.

The systematic use of iodine in thyrotoxicosis is comparatively recent. It is true that in 1860 Trousseau[1] observed that a patient who had been suffering from thyrotoxicosis was markedly improved by the use of iodine, accidentally administered by a nurse. Upon discovering the mistake, Trousseau withdrew the iodine medication and the patient became worse. However, the meaning of the observation escaped Trousseau entirely.

Kocher[2] in 1904 advocated the treatment of thyrotoxicosis with iodine; but later, upon observing the ill effects produced by iodine medication, withdrew his support of this form of medication. Undoubtedly, the ill effects were due to a too large dosage.

In 1911 Ohleman,[3] who was suffering from thyrotoxic goiter, treated not only himself but also his thyrotoxic patients with iodine and observed highly beneficial effects.

In 1914 Waller[4] published a paper entitled, "On the Value of Iodine Taken Internally in Graves' Disease." In this paper he highly recommended the use of iodine in thyrotoxicosis, claiming that iodine medication was highly beneficial to the thyrotoxic patient. Not only the cardiovascular and gastrointestinal symptoms subsided, but the general condition of the patient improved immensely: the nervous phenomena

gradually diminished, the patient gained in weight, the thyroid lost its vascular signs and became firmer. He observed also that the untimely cessation of iodine treatment allowed the symptoms to return. In short, Waller anticipated in every detail, apart from the estimation of the basal metabolism rate, the work of Plummer. However, his work passed unnoticed.

It was Plummer[8] who, in 1923, not only confirmed the observations made by various authors on the beneficial effects of iodine medication, but also popularized this form of treatment.

RESULTS OF IODINE TREATMENT

We have used iodine treatment in about 8,000 cases of thyrotoxic goiter, primary as well as secondary. In the *primary* thyrotoxic diffuse parenchymatous goiter we find the same results as observed by all who have used this medication: the basal metabolic rate falls rapidly within ten to fifteen days; the cardiac rate diminishes accordingly; the thyroid shrinks in size and loses most of its vascular signs; the arteries become smaller and less tortuous; and the bruit over the gland diminishes or disappears altogether. At the same time the gland assumes a firmer consistency and the general behavior of the patient improves remarkably.

In *secondary* thyrotoxic nodular goiter the results are not as striking as in the primary form of thyrotoxicosis; nevertheless, we have observed that iodine treatment is beneficial. The basal metabolism falls, although not as readily as in the primary form; the changes in the goiter are not as obvious as in the diffuse parenchymatous type, except the vascular signs, which, when present, may subside or disappear altogether. The heart is perhaps the organ which shows the greatest improvement. Here also the general improvement of the patient becomes very noticeable.

The effects of iodine are by no means constant. Furthermore, a dosage which may prove effectual in one individual may be entirely ineffectual in another. It may be truly said that an optimum amount has to be found for each patient. It is not at all uncommon to observe that some patients do not respond to iodine medication simply because the dosage has been too small. However, as a general rule, it is better to start with small doses and increase gradually until the optimum dosage is found.

There does not seem to be complete agreement among medical men as to what constitutes small doses of iodine. It is estimated that a daily absorption of about 6 mg. is the *physiological* amount of iodine necessary to induce and maintain the maximum colloid storage in a normal thyroid gland; smaller doses do not induce this maximum colloid storage. Therefore, 6 mg. of iodine daily might be regarded as the physiological dosage to be used in the treatment of thyrotoxic goiter.

Clinical observations, however, show that this physiological dosage is entirely inadequate. Indeed, in our routine practice we regard 10 to 20 minims of Lugol's solution daily as a small dose. Yet, if we remember that 10 minims of Lugol's represents 78 mg. of iodine, it becomes apparent at once that there is a great discrepancy between the *physiological* and a small *therapeutic* dose. Even this therapeutic dose is very frequently inadequate, and larger doses must be resorted to.

WORKING MECHANISM OF IODINE

The working mechanism of iodine in thyrotoxicosis has been very baffling, and to a great extent still is. It is difficult to understand how iodine can bring about such striking improvement, and why, after a few weeks of medication, the thyrotoxic syndrome frequently returns to its previous level, or worse. Also, one wonders why iodine should induce such a specific response in thyrotoxicosis, when the same response is absent if iodine is given to normal indi-

viduals. This iodine response in thyrotoxicosis is all the more remarkable in that iodine does not produce the same response in experimental hyperthyroidism induced by thyroid extract. This was shown to be true in man, as well as in animals, by Carson[6] in 1928.

In trying to understand the iodine mechanism in connection with thyrotoxicosis, we must bear in mind several factors:

1. Iodine increases the colloid content of the alveoli; the colloid assumes a thick aspect and shows a tendency to distend the alveoli; the alveolar cells become more flattened and elongated; the same is true for their nuclei.

2. In the primary diffuse parenchymatous thyrotoxic goiter the iodine-containing colloid is largely absent; it is thrown into the system as soon as it is manufactured. In consequence, the iodine content of the gland is considerably reduced, while on the other hand the blood iodine is markedly increased. The iodine present in the gland is largely made up of ionized inorganic iodine, while the blood iodine is largely made up of organic iodine. Saegesser[7] in 1932 showed that ionized inorganic iodine appears to be a thyro-stimulant; thus it might be argued that this substance activates the thyroid to overfunction.

3. It stands to reason that since the thyrotoxic gland is iodine-poor, iodine medication will result in a considerable increase in the iodine content of that gland; thus the relationship of the various fractions of thyroid iodine will again assume their normal aspects: the function of the thyroid is rendered more physiological, the colloid is retained within the alveoli, the thyroid overfunction is reduced or even ceases; in short, the gland returns to what is known as the *colloid-resting stage*. This results in the diminution of all the toxic symptoms due to the overfunction of the thyroid, and consequently results in a very great improvement of the patient. The gland loses its vascular signs; soft, elastic, even almost pulsating as it was before, it now becomes firmer because of the storage of colloid in the alveoli.

In thyrotoxic thyroids which have responded fully to iodine medication, one finds at operation that the gland is very firm; it bleeds very little on cutting, and the cut surface presents a very fine, granular, glistening appearance, suggestive of colloid-distended alveoli. On microscopic examination this particular goiter offers a picture of complete involution; the alveoli are distended to capacity by the colloid, the cells are of the low cuboidal type, the blood supply is diminished; in short, we have the picture of a gland in the colloid-resting stage. That the gland has been previously in a state of hyperfunction is evidenced here and there by remnants of an unduly active cellular hyperplasia.

On the other hand, if the iodine response has been only partial, or even negative, the thyroid still retains its vascular signs. Microscopically, it exhibits all the characteristics of an overfunctioning gland, such as absence of colloid in the alveoli, hyperplastic alveolar cells, etc.

The reason why iodine therapy is much less effectual in the secondary thyrotoxic nodular goiter than in the primary diffuse parenchymatous one is because the actual thyrotoxic cellular hyperplasia is much reduced in the former type. Iodine seems to have little or no influence on the large existing colloid nodules; they retain their normal thick colloid content, in marked contrast with the alveoli of the diffuse parenchymatous goiter, which are ordinarily empty of colloid. However, interspersed between the colloid nodules there are numerous hyperplastic cellular foci; these are the ones which respond to iodine medication. This fact will explain why the nodular colloid goiter responds much less readily to iodine medication than the parenchymatous goiter.

How are we to explain the very puzzling condition which we see so frequently; that is, not only the return of all the symptoms, but even their exaggeration, in the face of continued iodine medication?

The only logical answer is that iodine, after accomplishing its physiologic phase, namely, after inducing the colloid-resting state, is no longer wanted except in physiologic doses of maintenance. If an increased supply of iodine is kept up, it becomes an irritant and produces a toxic thyroiditis, with all the signs of functional overactivity. Thus, the thick colloid, which was originally in a state of colloid-gel, becomes liquefied and converted into colloid-sol; hence, its re-absorption into the system; hence, the return of all the toxic phenomena.

IODINE-RESISTANT CASES

A certain number of thyrotoxic patients do not respond to iodine medication. They are iodine-resistant. The mechanism of this iodine refractoriness is not yet clearly understood. Perhaps the refractoriness is due to the formation of substances which neutralize the iodine used in the same way as endocrine refractoriness is regarded as being due to antihormones. This condition is supposed to be brought about by a balancing, self-regulating mechanism which counteracts the effects of the substances used for medication.

Iodine refractoriness is ordinarily observed in individuals who have been Lugolized over a long period of time. It is probable that iodized salt used for preventive purposes can also induce iodine refractoriness. However, some patients who have never used iodine seem to be iodine-resistant from the start. The reason for this iodine refractoriness is not clearly understood.

The incidence of iodine refractoriness, in our experience, is about 9 per cent of the thyrotoxic cases.

Iodine resistance is a very great handicap in handling thyrotoxic patients, since we are consequently deprived of one of the best means we have for controlling the severity of thyrotoxicosis.

When confronted with these cases, we resort to heavy doses of iodine. If this does not succeed, we then ask the patient to undergo a series of roentgen-ray treatments before thyroidectomy is undertaken.

THYROTOXIC CRISIS

Thyrotoxic crisis after thyroidectomy is one of the most alarming and most dreaded of complications. Now that preoperative treatment with Lugol's solution is general, its incidence is much lower than formerly. However, it still occurs despite this preoperative medication.

Generally speaking, we may say that postoperative thyroid crises are only an exaggeration of all the symptoms seen in thyrotoxic patients. Tachycardia is exceedingly high, ranging between 180 and 200 or more beats. Auricular fibrillation is sometimes very marked. The patient shows extreme agitation, he tosses around in bed and his whole body is sometimes shaken by an intense tremor; he wants to get up and go home and must be restrained by attendants. Perspiration is abundant, and although there is no mechanical obstruction of the trachea, he shows air hunger. Temperature is unusually high, 103°-104° F., or more; the highest temperature we have seen in these patients was 107° F. The patient becomes disoriented, has hallucinations, sees imaginary people and talks incessantly. Exophthalmos becomes marked. Diarrhea is frequent and uncontrolled. This condition usually reaches its acute stage at the close of the second day, after which it generally terminates in death. In the lighter forms the mental symptoms are less pronounced, tremor is less intense and recovery usually follows.

To a certain extent one can foresee preoperatively a thyroid crisis. It is most likely

to occur in emaciated patients, in patients with gastrointestinal symptoms, such as vomiting or diarrhea, in patients with acidosis, in patients with mental aberrations and in iodine-resistant patients.

Furthermore, certain behavior of the patient when undergoing anesthesia for the thyroidectomy may be taken as a warning of an impending postoperative thyroid crisis. Patients to be suspected are those who, in going under anesthesia, show an unduly high cardiac rate; and who, when fully anesthetized, do not show a decline in the cardiac rate, the latter remaining at a very high level without showing any tendency to decrease. If, at the same time, these patients show jactitation while going under the anesthetic, also cardiac dilatation, they may be considered very poor operative risks and very likely to develop a thyroid crisis. It is therefore wiser to postpone operation and submit them to a more prolonged preparation.

The time consumed in performing the operation is also an important factor in the production of a thyrotoxic crisis. As a rule, the toxic goiter patient stands very poorly any kind of surgical or chemical traumatism (anesthesia). Now it stands to reason that the patient who is submitted to a prolonged thyroidectomy will be more likely to develop a thyroid crisis than the one whose chemical and surgical traumatism has been much shorter.

It has not been our experience that loss of blood is a deciding factor in bringing about a thyroid crisis.

We feel that drainage is an important safety factor in avoiding a thyroid crisis, since it prevents absorption of toxic products into the general circulation. At any rate, be this the case or not, we systematically use open drainage in these patients. By this I mean that the wound is left open, packed with acriflavine, and seepage is allowed to exude freely. Forty-eight hours or more later, the wound is closed. We regard this form of drainage as the best one in such cases.

Since we feel that thyroid crises are purely an exacerbation of all the pre-existing toxic symptoms, we are bound to conclude that the etiology of these thyroid crises is the same as observed in the thyrotoxic syndrome. On the other hand, since we admit that thyrotoxicosis is induced by an oversupply of thyroxin, we are forced to conclude that thyroid crises are also caused by an undue amount of thyroxin in the general circulation.

What causes this sudden appearance of thyroxin? It might be argued that it is forced into the circulation by the manipulations of the toxic gland during operation. Most likely, this factor is only a minor and negligible one.

We know that thyroxin is normally fixed in the tissues and kept there as a reserve for emergency physiologic necessities. Now, during the thyrotoxic syndrome, thyroxin is normally oversecreted; thus we may readily assume that the amount fixed in the tissues becomes considerably increased. This thyroxin fixation is the safety valve against thyroxin intoxication. Now, let the thyroxin fixation mechanism cease to operate; then the thyroxin fixed in the tissues is released into the general circulation, the system becomes flooded with it, and the thyroid crisis appears. What induces the releasing mechanism to operate is still unknown.

THYROTOXIC COMA

In rare instances the postoperative thyrotoxic syndrome assumes an entirely different aspect. After operation the patient does not regain consciousness, but remains comatose for days. One of our patients remained comatose for ten days. Such patients lie in their beds motionless; temperature is high, but never remains at the high level observed in thyroid crisis. The cardiac rate is rapid, but again does not reach the

same high level as seen in thyroid crisis. Ordinarily, these patients die without regaining consciousness.

IODINE MEDICATION

It is very important to remember that iodine does not cure thyrotoxic goiter. It only induces a resting stage during which thyroidectomy can be more safely performed. If iodine medication is carried on unduly long, especially in large doses, the resting stage soon gives way to a return of the thyrotoxic symptoms. It is also well to remember that the prolonged use of iodine may induce a refractory state which robs the patient and the surgeon of a factor of safety when needed.

Iodine treatment is indicated in all forms of thyrotoxic goiter, primary as well as secondary, whether incipient, severe or a masked form of hyperthyroidism. The optimum response will be found in the genuinely diffuse parenchymatous goiter; the thyrotoxic secondary nodular colloid goiter also responds, but in a much less spectacular manner. The true masked hyperthyroidism is ordinarily benefited by iodine treatment.

The best medication for the thyrotoxic goiter heart is iodine. We also use digitalis routinely and have never seen any objection to the use of this drug. It is particularly well suited to patients with cardiac dilation, decompensation and auricular fibrillation.

Any thyrotoxic patient undergoing preoperative preparation for thyroidectomy, no matter whether primary or secondary, should receive iodine medication. The treatment depends entirely upon the nature of the goiter and especially upon the response to the iodine medication. It may last only five or six days or it may be necessary to prolong it for two or three weeks. We ordinarily prescribe 20 to 30 minims of Lugol's solution daily in water, milk or fruit juices.

When it is thought that the patient is ready for operation, an ampule of diasporal, which contains 100 mg. of colloidal iodine, is given intravenously the day before operation. The same intravenous diasporal injection is used as soon as the operation is finished and, if necessary, is repeated the following day. It is absolutely essential that the injection of diasporal be made intravenously, because if it is spilled in the surrounding structures, a good deal of painful induration will result.

We also use sodium iodide, 0.5 to 1 Gm., intravenously. Spilling of the sodium iodide in subcutaneous structures has little or no consequence.

When dealing with a thyroid crisis, or with a thyrotoxic coma, we always use a very large dosage of diasporal or sodium iodide. We have given as much as 500 mg. of diasporal in twenty-four hours.

In our experience these very large amounts of iodine given intravenously do not seem to produce any untoward effects. Only once have we observed that after the use of 500 mg. in twenty-four hours an old, dormant pulmonary tuberculosis became reactivated.

To sum up—in ordinary conditions 10 to 30 minims of Lugol's solution daily will be sufficient to prepare a patient for thyroidectomy. In other conditions much larger doses will be necessary. We must remember that 10 minims of Lugol's solution represents 78 mg. of iodine. Lugol's solution per rectum is much less satisfactory.

The treatment of iodine-resistant patients presents a further problem, since this iodine refractoriness robs both the patient and the surgeon of one of the most helpful means of controlling the hyperthyroid condition. In such cases we have resorted to very heavy doses of iodine and have combined iodine medication with roentgen-ray treatment. A few roentgen-ray applications will improve the patient considerably and en-

able the surgeon to perform the operation with comparative safety.

Iodine is not only a useful medication in handling thyrotoxicosis, but is also a very valuable diagnostic adjunct; in doubtful cases iodine will act as a therapeutic test to determine if thyrotoxicosis is present or not. The patient's response in these cases will provide valuable information, especially if, after withdrawal of the iodine medication, the patient returns to his previous state.

SUMMARY

The results of iodine treatment in about 8,000 cases of thyrotoxic goiter, primary as well as secondary, are discussed. Primary thyrotoxic diffuse parenchymatous goiter responds best to iodine medication; secondary thyrotoxic nodular goiter also responds, but less strikingly. The physiological dose (6 mg. of iodine daily) necessary for the maintenance of the function of the thyroid is totally insufficient as a therapeutic dose. We must remember that a small dose (10 minims) of Lugol's solution represents 78 mg. of iodine.

The working mechanism of iodine in thyrotoxicosis consists in inducing a colloid-resting stage. Iodine is less effectual in the nodular type of goiter because these colloid nodules do not respond to iodine medication, the only portion which does respond being the thyrotoxic cellular hyperplasia interspersed among the nodules. Prolonged medication is liable to produce a toxic thyroiditis with the return of thyrotoxic symptoms. Nine per cent of the author's thyrotoxic cases were iodine-resistant.

Postoperative thyroid crises are less frequent since the advent of iodine treatment. These crises are an exacerbation of the preexisting thyrotoxic symptoms and seem to be caused by the sudden release of the fixed thyroxin in the tissues, thus flooding the organism with an undue amount of thyroxin. Postoperative drainage is a safety factor in avoiding thyroid crises.

In using iodine, it is best to start with small doses and increase gradually until the optimum amount is found. Diasporal colloidal iodine (100 mg.) or sodium iodide (1 Gm.) is given intravenously the day before and again the day of the operation. In thyroid crisis, as in thyrotoxic coma, a very large amount of iodine is given intravenously. Iodine-resistant patients are given large doses of iodine and are also treated with roentgen-rays preoperatively, if they are of the thyrotoxic type.

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RÉSUMÉ

Le iode dans la chirurgie thyreotoxique

Les résultats du traitement avec le iode dans presque 8,000 cas de goitre thyreotoxique primaire et secondaire sont discutés. Le goitre primaire thyreotoxique diffus parenchimateux réponds le mieux à la médication avec le iode; le goitre secondaire thyreotoxique nodulaire réponds aussi, mais moins remarquablement. Le dosage physiologique (6 mg. de iode par jour) necessaire pour le maintenement de la function de la thyroïde est totalement insuffisant pour un dosage thérapeutique.

Le mechanism d'action du iode dans la thyreotoxicose consiste en déterminer un êtat de repos du colloïde. Le iode est moins efficace dans le type nodulaire du goitre parceque ces nodules colloïdes ne répondent pas à la médication avec le iode, la seule partie que réponds est la hyperplasie thy-

reotoxique cellulaire entremêlée parmi les nodules. Une prolongée médication peut produire une thyroïdite toxique avec le return des symptôms toxiques. Neuf pour cent des cas de l'auteur étaient iodo-résistants.

Les crises thyroïdiennes postopératives sont moins frequentes après la venue du traitement avec le iode. Ces crises sont une exacerbation des pre-existentes symptômes thyreotoxiques et semblent être dues à la sudaine liberation de la thyroxine fixée dans les tissues, ainsi inondant l'organisme avec une anormale quantité de thyroxine. Le drainage postopératif est un facteur dans l'éviter les crises thyroïdiennes.

En employant le iode c'est mieux de commencer avec des petites doses et augmenter gradualement jusqu'a que l'optimum est trouvé. Diasporal iode colloidal (100 mg.) ou iodure de sodium (1 Gm.) sont donnés dans les veins le jour avant et encore le jour de l'operation. Dans les crises thyroïdiennes, comme dans le coma thyroïdien, une grande quantité de iode est donnée dans les veins. Les malades iodo-résistents reçoivent grandes quantités de iode et sont aussi traités avec les rayons roentgen, s'ils sont du type thyreotoxique.

ZUSAMMENFASSUNG

Jod bei thyreotoxischer Chirurgie

Es werden die Resultate von Jodbehandlung in ungefähr 8,000 Fällen von thyreotoxischen Kropf, primär sowohl als auch sekundär, besprochen. Primärer, thyreotoxischer, diffuser, parenchymatöser Kropf spricht am besten auf Jod Medikation an; sekundärer, thyreotoxischer nodulärer Kropf reagiert auch, aber weniger auffallend. Die physiologische Dose (6 mg Jod täglich) welche für die Erhaltung der Schilddrüsenfunktion nötig ist, ist als therapeutische Dosis völlig unzulänglich.

Der Arbeitsmechanismus des Jod in Thyreotoxicosis besteht in der Induzierung eines Kolloid resistenten Zustandes. Jod ist weniger wirksam bei dem knotigen Kropftypus, da diese Kolloidknoten nicht auf Jodmedikation ansprechen und die einzigen Portionen die reagieren, die zwischen die Knoten eingesprengte, thyreotoxische zelluläre Hyperplasie ist. Verlängerte Medikation kann eine toxische Thyreoiditis hervorrufen, mit Rückkehr von thyreotoxischen Symptomen. Neun per cent der thyreotoxischen Fälle des Autor waren Jod resistent.

Postoperative Thyreoid Krisen sind seit der Einführung der Jod Behandlung weniger häufig. Diese Krisen sind eine Verschlimmerung der pre-existierenden thyreotoxischen Symptome, scheinbar verursacht durch das plötzliche Freiwerden des gebundenen Thyroxin in den Geweben, welches dadurch den Organismus mit einer ungebührlichen Menge von Thyroxin überschwemmt. Postoperative drainage bietet einen Faktor zur Vermeidung von Thyreoidkrisen.

Bei der Anwendung von Jod ist es am besten mit kleinen Dosen zu beginnen und langsam anzusteigen bis die optimale Menge gefunden wird. Diasporales kolloidales Jod (100 mg) oder Jod Natrium (1 Gm) wird einen Tag vor und einen Tag nach der Operation intravenös verabreicht. Bei Thyreoidkrisen als auch bei thyreotoxischen Koma wird eine grosse Menge Jod intravenös gegeben. Jod resisten Patienten werden grosse Dosen von Jod verabreicht und werden auch preoperativ mit Röntgen Strahlen behandelt, wenn sie dem thyreotoxischen Typus angehören.

SUMARIO

El yodo en la cirugia del tiroides tóxico

Son discutidos el resultado de 8,000 casos de bocio tóxico primario así como el secundario. El bocio parenquimatoso difuso primariamente tóxico responde mejor a la medicación con yodo; el bocio nodular secundariamente tóxico responde tambien, pero menos notablemente.

Una dósis terapeútica de yodo es insuficiente para mantener la función del tiroides. La dósis fisiológica es de 6 mg. de yodo diariamente.

El mecanismo del yodo en las tirotoxicosis consiste en inducir a un estado de reposo coloidal. El yodo es menos efectivo en el tipo nodular porque los coloides no responden al yodo, la única porción que responde es la hiperplasia celular intersticial que se encuentra entre los nódulos. La medicación prolongada es capaz de producir una tiroiditis tóxica con el regreso a los síntomas tirotóxicos. Nueve por ciento de los casos reportados por el autor fueron yodo-resistantes.

Las crisis tiroideas post-operatorias son menos frecuentes desde el advenimiento del tratamiento con yodo. Estas crisis son una exacerbación de los síntomas tóxicos preexistentes y parecen ser causadas por la repentina libertad de la tiroxina fijada en los tejidos, inundando el organismo con una excesiva cantidad de tiroxina.

En el uso del yodo, es mejor empezar con pequeñas dosis y aumentar gradualmente hasta la cantidad optima encontrada. El yodo coloidal, Diasporal (100 mg.) o yoduro de sodio (1 gm.) es administrado intravenosamente un día antes y un día despues de la operación. En las crisis del tiroides, como en el coma tirotóxico, se dará una gran cantidad de yodo intravenoso. Los pacientes yodo-resistentes se les dará grandes dosis de yodo intravenoso y si son del tipo tirotóxico serán tambien tratados con rayos roentgen antes de la operación.

RIASSUNTO

Lo iodio nella chirurgia tireotossica

Sono discussi i risultati del trattamento con iodio in circa 8000 casi di gozzo tireotossico, sia primario che secondario. Il gozzo diffuso parenchimatoso primario tireotossico risponde nel miglior modo al trattamento iodico; il gozzo tireotossico secondario nodulare risponde anche, ma meno nettamente. La dose fisiologica (6 mg. di iodio al giorno) necessaria per il mantenimento della funzione della tiroide è del tutto insufficente come dose terapeutica.

Il meccanismo di azione dello iodio nella tireotossicosi consiste nell'indurre uno stato di riposo della sostanza colloide. Lo iodio è meno efficace nel tipo nodulare di gozzo perchè questi noduli colloidi non rispondono alla medicazione iodica, la sola parte che risponde è l'iperplasia tireotossica cellulare dispersa tra i noduli. Medicazione prolungata può produrre una tiroidite tossica col ritorno dei sintomi tireotossici. Nove per cento dei casi di tireotossicosi dell'A. erano iodo-resistenti.

Crisi tiroidee postoperative sono meno frequenti dall'avvento del trattamento iodico. Queste crisi sono un' esacerbazione dei sintomi tireotossici preesistenti e sembrano essere causate dall'improvvisa liberazione della tirosina fissata nei tessuti, inondando così l'organismo con un abnorme quantità di tirosina. Drenaggio postoperativo è un fattore nell'evitare crisi tiroidee.

Nell'usare iodio, è meglio cominciare con piccole dosi e aumentare gradatamente fino a che l'ottima quantità sia trovato. Iodio colloidale (100 mg.) o ioduro di sodio (1 gm.) sono dati il giorno precedente e ancora il giorno della operazione. Nelle crisi tiroidee come nel coma tireotossico una grande quantità di iodio è data per via endovenosa. Pazienti iodio-resistenti ricevono forti dosi di iodio e sono anche trattati con raggi röntgen prima della operazione, se sono del tipo tireotossico.

Cardiotoxic Goiter

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BY a cardiotoxic goiter is meant one that causes a disturbance of the heart due to a toxic substance released by degenerative changes in the goiter. When are we warranted in speaking of degeneration? When microscopic examination reveals a state in which the colloid has definitely departed from the normal and the cells are functionless because they are literally gone.

Is there degeneration of the colloid in all cardiotoxic goiters? That is the rub—there is not always. Judging from the clinical signs, one sometimes believes that he will find colloid changes but finds only cellular hyperplasia or cell degeneration. Whether the changes in the cells are the actual cause of death and the basal colloid only an inconstant evidence of it, whether the degenerated colloid, merely an inert substance, is only an incidental finding of postmortem significance, is a question that cannot be answered positively in the light of our meager findings.

Fortunately, it is now possible to study the effect of the goiter on the heart by a total thyroidectomy in all stages of the disease, in this way determining the effect the goiter has had on the heart and at the same time securing material for histologic study. The obvious conclusion is that the goiter was responsible for the cardiac condition if the heart becomes normal after the ablation of the thyroid gland. By the laboratory study of the tissue thus removed and by finding a constant change, the demands of scientific investigations are fulfilled, at least for clinical purposes.

It is strange that while we have been busy studying the problem of goiter deaths, our problem has somehow slid out from under us. My old goiter patients without exception died from heart failure. I know exactly how they die, from long, weary bedside observation. I know, too, how it feels to have a patient die of heart failure after operating on him. These patients died only because the seriousness of their condition was long unrecognized. Now patients come before they are dangerously sick, the goiter is totally ablated and this ends the matter. Cardiac deaths are now a rarity.

PATHOGENESIS

It is obvious that we must go back much farther than has been our wont in studying the effect of goiter on the heart. Old bosselated goiters, supposedly innocent throughout life, are actually constantly at work. The so-called nontoxic nodular goiters frequently pass directly to a cardiotoxic state without there having been compelling evidence of thyroid toxicity, in the ordinary sense, at any period of the disease. Let it be repeated that absence of thyrotoxic manifestations is no proof that the heart is not being injured by the goiter. A slight increase in pulse rate and some nervousness are unlikely to cause great concern in the mind of either patient or doctor until a failing heart compels recognition of the baneful effect of the goiter. It must be obvious to everyone that the basal rate is useless in determining the toxicity of these cases.

Such cases require the combined knowledge of the clinic, the operating room and the laboratory, and even the postoperative life history of the patient for even an ap-

proximately complete picture. The pathologist working alone cannot hope to solve the problem. An extended laboratory study in association with the surgeon may be necessary to bring some semblance of order out of chaos. The presence of the surgeon is needed to remind the pathologist that the study of a single block of tissue may be misleading, and dependence on a simple routine stain even more so. Certain it is that one must study each case as an entity, comparing the various anatomic changes with the clinical signs. Nowhere in the field of surgery is the cooperation of the pathologist so important, for only by associating himself with the surgeon is it possible for either to see the whole picture. We might even admit the physiologists and the physical chemists, if they would cease to soar in the celestial field and come down to earth to engage in the vulgar pursuit of listening to the wails of the unclean. Everyone should realize that the mere fact that we do not recognize or understand a pathologic state is not to be used as evidence that it does not exist.

PATHOLOGY

The essential changes in cardiotoxic goiters are distinguished from those in toxic nodular goiters in that in the former there are degenerative changes which in some way damage the general constitution, including the heart, while in the latter there is increase in cell activity. When such goiters are viewed in the laboratory, the differences between the hyperplastic and the degenerative states are difficult to distinguish in the gross. The clinical examination is more enlightening. The difficulty lies in the fact that the two processes are commonly active at the same time. One sees early cell activity in more or less pure form, but at a varying age degenerative changes begin, and in most cases the two processes are active at the same time.

This difficulty is what keeps us running from the laboratory to the clinic for the answer to more and more questions. We must recognize that the slide we are examining gives a picture of only the one area. What other parts of the gland may show can be determined only by the examination of more tissue. By thorough study we frequently find that one part of the gland shows hyperplasia, representing, say, the toxic nodular goiter, while in another area of the same gland there is no hyperplasia, only degeneration. In such cases which part is damaging the patient?

The first impressive pathologic changes that confront the surgeon are the friability of old colloid goiters when they are exposed at operation. The capsule tears easily, and with it the veins, producing distressing hemorrhage, as inexperienced operators may find out to their consternation. The parenchyma oozes out like brain tissue; it is usually reddish brown in color and of the consistency of exuberant granulation tissue. This state of the fibrous tissue is due to degeneration, depending on the acuteness of the glandular reaction. However, these physical changes may be encountered in equal degree in toxic nodular goiters, or even in the nontoxic, without notable cardiac change.

The small, late-appearing, though long-existing goiters are different. The connective tissue is firm, the gland is inelastic and the vascularity is slight. This is likely to be true in cases in which the existence of a goiter was not recognized until search was made for a possible explanation of a cardiac failure. The thyroid is firm, sometimes so hard as to simulate cancer, and may even be indistinguishable from it on the operating table until one remembers that cancer seldom involves both lobes. These thyroids may be but little if any enlarged, in which case the term "cardiotoxic thyroid" is more exact, anatomically speaking, than "cardiotoxic goiter."

My hypothesis at the present time is that

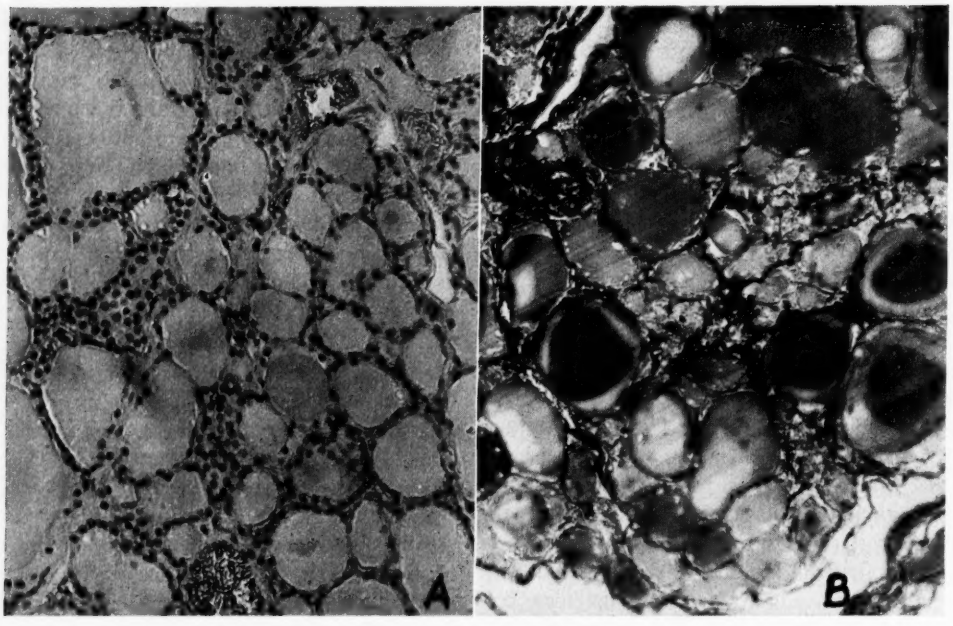

Fig. 1. Burned-out acute Basedow's disease followed by acute thyrotoxicosis. *A*. Colloid, in part basophilic, some very palely staining, some granular. The epithelium is degenerated and in some acini absent. *B*. Area of cellular hyperplasia indicative of acute thyrotoxicosis.

the primary factor is to be found in the changes in the colloid. This theory certainly is logical in those cases in which there is complete absence of cellular degeneration, changes in the tinctorial reaction alone being demonstrable. The change from an acidophilic to a basophilic colloid is too constant to be mere chance. I believe that this hypothesis, which has absorbed my attention for so many years, has risen to the dignity of a theory and I offer it as such.

If physiologists will realize that we know nothing about the action of the thyroid in the adult, we can start with the theory that the goiter does not amount to much after we are grown up. We now know that we can completely remove the thyroid gland in adults and nothing deleterious will happen. It seems that the time has arrived for the physiologists to count their money.

The essential change in cardiotoxic goiter is the regression of the acinal colloid from an acidophilic to a basophilic structure. With the changes in the colloid there are many other changes. Degenerated acinal epithelium commingled with newly formed acini may be present, reminding one of an aged person who robs a cradle obsessed with the delusion that he is as good as he ever was. Can the thyroid in aged persons, by forming new acini, revert to an infantile state comparable to the juvenile gland while it is getting us sexed in the first place? This is of interest to surgeons, because if true, it would be an indication for total prophylactic thyroidectomy in all males, say at an arbitrary age of thirty-five years. This is not an attempt to be facetious. Perhaps the old man having his second fling has just gone juvenilely thyroid, which, please note, is remediable by total thyroidectomy.

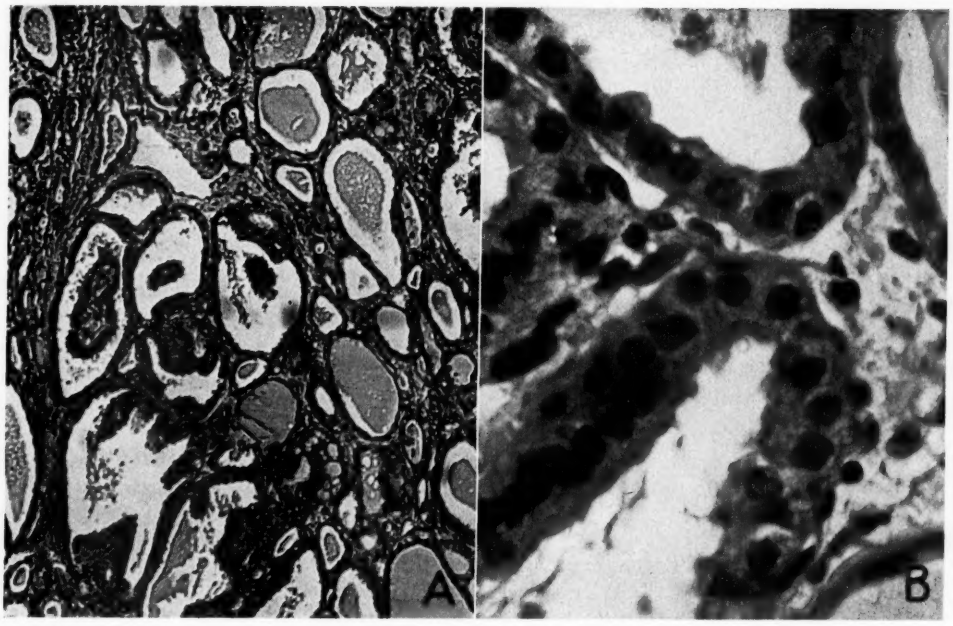

Fig. 2. Colloid degeneration in cardiotoxic goiter. *A*. The colloid is slightly basophilic, as seen in the hematoxylineosin stain. *B*. Same specimen stained with Mallory's aniline blue stain.

At any rate, the colloid in these old goiters does change its reaction even if there appears to be, here and there, evidence of renewed cellular activity. I have worked with eleven different dyes. The basophilia shown by hematoxylin is relatively a late reaction. Many of the more complicated dyes show the reaction much earlier. Mallory's aniline blue dye is simple to use and just as delicate as the more complicated stains; therefore it has been made the standard laboratory routine here.

The change from acidophile to basophile colloid, as just discussed, is a very constant finding, though often associated with one or more of the following changes:

1. Degeneration in the acini in which all colloid is lost, the cells being formed in groups lying in poorly formed connective tissue. These sometimes resemble epithelial malignancies and are often so diagnosed.

2. Desquamation of epithelium into the contained colloid.

3. Hyperplasia of epithelium, usually formed in groups lying in the interacinar spaces or free if the acini have disappeared. In the severer cases the whole structure is lost. The acinal epithelium is flat and for the most part desquamated; the colloid is absent or stains imperfectly if at all.

Sometimes the old slumbering goiters may suddenly show distinct evidence of thyroid intoxication, a really Basedowified goiter of Kocher. Areas show some change in colloid reaction with low degenerated cells (Fig. 1A). Other areas show the development of new acini whose cells show real capacity for secretion (Fig. 1B). The patient from whom the slides in Figure 1 were obtained began with a very acute case of Basedow's, accompanied by fever and delirium. After a few years the symptoms

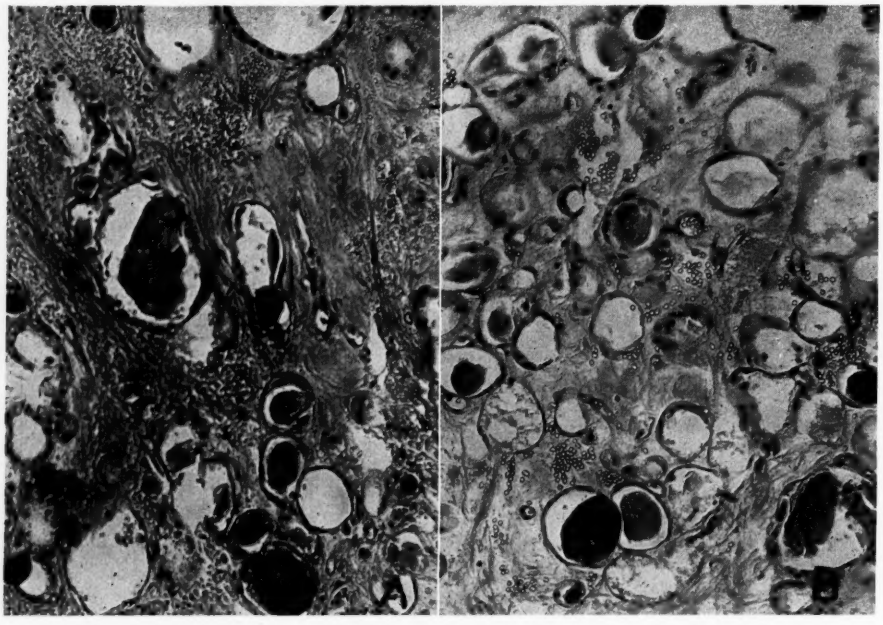

Fig. 3. Slide from a cardiotoxic goiter with extensive degeneration. *A*. Increase of fibrous tissue, some very palely staining acini, the epithelium low, degenerated, even absent. *B*. All tissues palely staining, a few deeply staining acini.

lessened and she enjoyed fair health for almost thirty years. Then she began to show cardiac signs and, suddenly, pronounced acute toxicosis.

This patient presented a picture commonly seen in old Basedow's disease: subsidence after some years, the patient seeming in large measure cured; then suddenly a flare-up, though without the return or augmentation of the eye signs. So commonly have I seen this occur that I have come to regard it as the normal end of old Basedow patients. How much is due to changed colloid, how much to cell hyperplasia is impossible to say. This much I have learned: when an old case of Basedow's disease flares up, the patient dies in a short time, either with or without operation.

In the typical cardiotoxic goiter there is no cellular hyperplasia. All is degeneration. The early stage shows a flat, obviously inactive acinal epithelium (Fig. 2A) with the colloid staining slightly basophilic. The change in the colloid is much more impressive when stained with special stains (Fig. 2B).

In more advanced stages the fibrous tissue is notable (Fig. 3). The acini may seem to be empty except in some areas, where it is intensely staining.

In yet more pronounced cases the structure is almost formless. There is little to suggest a possible functioning tissue. All that remains of recognizable thyroid tissue is small acini lined by epithelium very atrophic or even absent (Fig. 4A). In other areas the acinal epithelium is separated and may lie free of structure, which to the inexperienced sometimes suggests malignancy (Fig. 4B).

Occasionally one finds slides which are confusing. These may show a complete

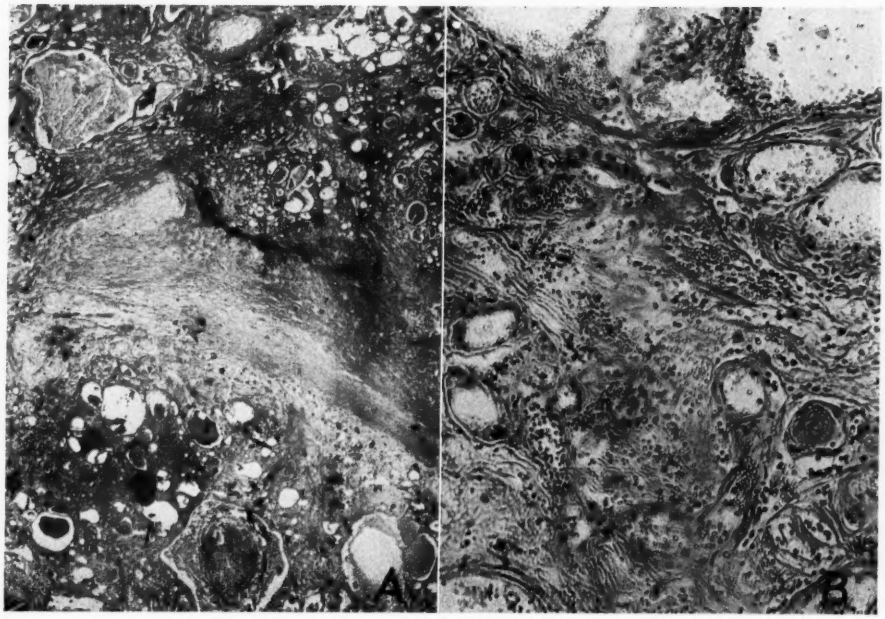

Fig. 4. Advanced cardiotoxic goiter. *A*. All trace of goiter tissue is lost except a few small basophilic acini. *B*. Acini destroyed, the epithelium of some acini loosening, many areas of cells which have lost all contact with acinal walls.

absence of colloid, presenting only degeneration of acinal cells (Fig. 5A). This suggests that the intoxication is due to toxic substances from these cadaveric cells. An area which shows degenerated epithelial cells with obviously degenerated colloid (Fig. 5B) is just one of the types which disturb the theory of colloid change.

SYMPTOMATOLOGY

From the foregoing it is obvious that if the student of pathology expects each slide to be nicely decked out with tinctorial changes in the colloid, he will be disappointed. It is only by combining the details of many cases which he has studied in the clinic as well as in the laboratory that he can hope to gain a general picture of these changes. The chief reliance must be placed on the evidence of the clinic, both preoperative and postoperative.

Naturally, goiters removed at the beginning of the cardiotoxic state will show most distinctly the tinctorial changes in the colloid. Once the many complications develop, with associated degeneration, the picture is very confusing. Here more than in any other field of pathology, it is necessary to cut many blocks of an endless number of goiters in order to get a fair picture of the gland as a whole. Even then the student finds himself confronted only with probabilities, perhaps just possibilities. Even so, a wild clawing for air is better than complacent suffocation.

So far as thyroid enlargement itself is concerned, a great variety of external forms are presented to the examiner. For the most part the goiters show bosselations which are obvious on external examination, but frequently they are uniform and small, hugging the trachea deep down in the

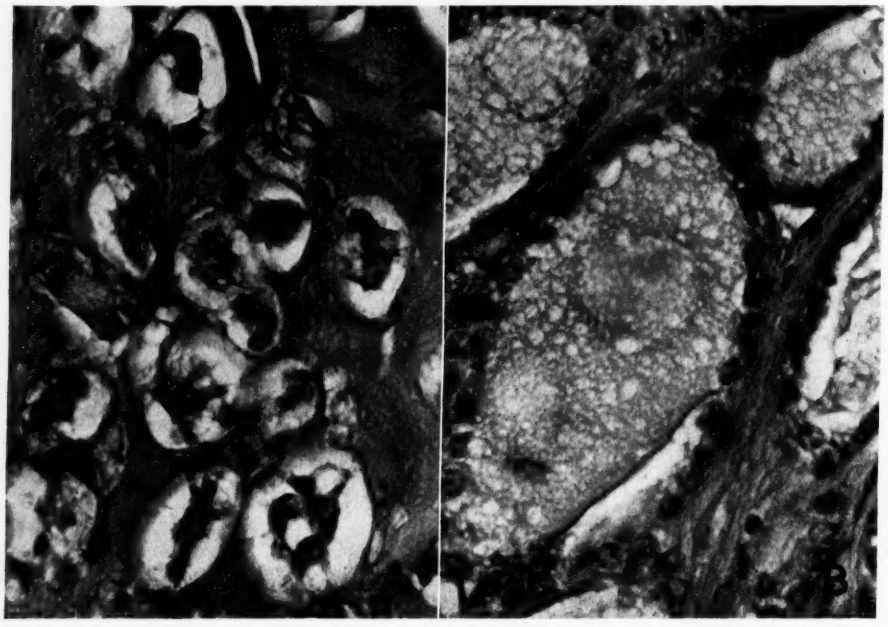

Fig. 5. Clinically cardiotoxic goiter. *A.* Acini almost devoid of colloid and the acinal cells necrobiotic. *B.* Colloid granular and basophilic, the acinal cells irregularly staining, some exfoliated.

suprasternal notch. The distinctive feature is a hardness to the touch and a sense of fixity. There is not quite the hardness of cancer, yet it is more pronounced than in the usual toxic forms of colloid goiter and lacks the granular surface feel of the primary toxic goiter. Cases of degeneration implanted primarily on large, soft lobulated goiter may, of course, lack this pronounced density; even then, one senses a firmer feel than in the large undegenerated glands.

In early cases it is difficult to say whether the symptoms of heart disturbance are due to a failing heart, or to the goiter as such. This is particularly true with marked loss of weight and nervousness. Physical examination may not detect any cardiac disturbance when the patient is in repose. The work capacity of the patient's heart must be considered rather than the findings on physical examination. A knowledge that cardiac disturbance is the usual end-result of old goiters should put one on guard in such cases and cause one to give particular attention to this phase of the examination.

The heart disturbances due to this type of goiter are different from those of toxic goiter. The heart sounds lack the confident, excited click and the booming first sound of the acutely toxic goiter. The apex beat may be diffuse, but is usually weak and indistinct. Sooner or later the rate and volume become irregular. Evidence of decompensation may find its chief expression in a general sense of weakness and dyspnea. In the more advanced cases, cardiopathies due to goiter are not alleviated by rest and treatment to the same degree as cardiopathies of primary origin. The arrhythmia may continue despite treatment until some terminal process intervenes: hypostatic pneumonia, general inanition or other intercurrent dis-

ease. In some cases the heart simply stops without demonstrable excuse and without definite anatomic findings at autopsy. The patient simply "fades out" after operation.

DIAGNOSIS

The chief difficulty in diagnosis lies in the gradual development of heart changes. I believe one may safely assume that any old goiter, no matter what its clinical character and past history, is already elaborating a substance which is inimical to the welfare of the heart muscle. Where a goiter is accompanied with evidence of cardiac disturbance, the dependence of the latter on the former may be assumed in the absence of definite signs of a primary cardiopathy. Nervous heart lesions in persons with simple goiter can be recognized by the soft goiter, and the dependence of the heart disturbances on definite nervous states. These disturbances vary from the pitty-pat of the subdeb to the pronounced paroxysmal tachycardia of the matron.

To the surgeon the silent cardiopathies are of special interest. The heart may show no abnormality until after the operation, when fibrillation develops. In long-standing goiters, particularly when they are hard, a cardiopathy should be assumed to exist. Unaccountable anemia and fatigability and a weary, subdued nervousness should suggest a weak heart to the surgeon.

TREATMENT

Some surgeons believe that the part of the goiter they allow to remain at operation will return to normal. This supposition is difficult to check because we do not know what the normal is. We may admit that this improvement is possible in hyperplastic goiter, but certainly there is no return to normal in goiters such as are illustrated in the present article. The dead cannot rise again so far as a surgeon can see. Removal of the offending goiter, of course, is the only treatment.

The most important part of treatment is preoperative. Even with the best preoperative management, however, there are still some things to be considered on the operating table. The one essential is that the patient not be subjected to more operating at any one time than she can bear. If the patient appears much older than her years, she likely will bear operation badly. If the goiter is very hard and adherent, or if the trachea is soft from pressure of the goiter, only one lobe had best be removed at the first operation. The other lobe may then be removed, but it must all be removed. To do otherwise would be as sensible as to remove all but one or two hemorrhoids in doing a hemorrhoidectomy, on the assumption that they will in time subside and in the meantime will serve as a stimulus and thus prevent shock.

SUMMARY

The author's hypothesis is that the primary factor in cardiotoxic goiter is to be found in the changes in the colloid. This supposition is certainly logical in those cases in which there is complete absence of cellular degeneration and the changes in the tinctorial reaction are all that can be demonstrated. The essential change in cardiotoxic goiter is the regression of the acinal colloid from an acidophilic to a basophilic structure. The treatment is total removal of the thyroid gland. The operation can be done more quickly, the after-course is smoother and postoperative myxedemics are fewer than after the partial operation.

RÉSUMÉ

Goitre cardiotoxique

L'hypothèse de l'auteur est que le facteur primaire dans le goitre thyreotoxique peut être trouvé dans les alterations dans le colloïde. Cette supposition est certainement logique dans ces cas dans les quels il y a une complete absence de degeneration cellu-

laire et les modifications dans la reaction tinctoriale sont tout ce que peut être démontré. La modification essentiale dans le goitre cardiotoxique est la régression du colloïde d'une structure acidophilique à une basophilique. Le traitement est la totale asportation de la glande thyroïde. L'opération peut être faite plus rapidement, le cours après l'opération est plus doux et le mixédème post-opératif moins frequent que après une opération partiale.

ZUSAMMENFASSUNG

Cardiotoxischer Kropf

Des Autor's Hypothese ist, dass der primäre Faktor bei cardiotoxischen Kropf in den Veränderungen des Kolloid zu finden ist. Diese Annahme ist sicherlich bei den Fällen logisch, bei denen eine zelluläre Degeneration vollkommen fehlt und die Veränderungen in den Färberektionen das einzig demonstrierbare sind. Die Hauptsächliche Veränderung bei cardiotoxischen Kropf ist die Regression des acinalen Kolloid von einer acidophilen zu einer basophilen Substanz. Die Behandlung ist totale Entfernung der Schilddrüse. Die Operation kann raschen ausgeführt werden, die Nachbehandlung ist einfacher und das postoperative Myxoedem seltener als nach der partiellen Operation.

SUMARIO

Bocio cardiotóxico

La hipotesis del autor es, que el factor primario en el bocio cardiotóxico es debido a los cambios coloidales. Esta suposición es una verdal lógica, en aquellos casos en los cuales hay una ausencia completa de degeneración celular y cambios en las reacciones tintoreales. Los cambios esenciales en el bocio cardiotóxico es la regresión del colvide acinal, de una estructura acidófila a una basófila.

El tratamiento es el de remover la totalidad de la glándula tiroides. La operación puede ser hecha rápidamente sin dificultad y los trastornos post operatorios son mucho menores que cuando se hace una operación parcial de la glándula.

RIASSUNTO

Gozzo cardiotossico

L'ipotesi dell'A. è che il fattore primario nel gozzo cardiotossico è da ricercarsi nelle alterazioni della sostanza colloide. Questa supposizione è certamente logica in quei casi nei quali c'è una completa assenza di degenerazione cellulare e le alterazioni nella reazione tintoriale sono tutto quelle che può essere dimostrato. L'alterazione essenziale nel gozzo cardiotossico consiste nella regressione del colloide degli acini da una struttura acidofila ad una basofila.

Il trattamento consiste nella rimozione totale della ghiandola. L'operazione può essere fatta più rapidamente, il corso postoperativo è migliore e mixedema postoperativo è meno frequente che dopo una parziale operazione.

SURGEONS OF CENTRAL AND SOUTH AMERICA

Surgeons residing in Central and South America who desire to attend the International Assembly of the International College of Surgeons will please address Dr. Manuel A. Manzanilla, Avenida Tamaulipas Num. 60, Mexico City, D.F.

Lingual Thyroid (Lingual Goiter)

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THE literature dealing with the embryology of the thyroid gland recognizes the infrequency with which the structure of this endocrine body is arrested in its original anlage about the foramen cecum at the base of the tongue, or elsewhere in or under the tongue. Thyroid surgeons of large experience may see one or a few such cases, and thyroid clinics with thousands of cases may observe only a limited number. Nevertheless, nearly 250 cases have been recorded as suspected, diagnosed or unrecognized thyroid tumors at the base of the tongue or in the buccal cavity.

As an uncommon lesion, lacking in characteristic signs for proper recognition and diagnosis, it falls rather under the category of surgical anomalies than under anatomopathological observations calling for timely diagnosis and practical treatment.

These facts notwithstanding, such abnormal structural developments are frequent and consequential enough to call for differential diagnosis, and for suitable treatment to relieve the symptoms or to prevent neoplastic changes, for embryonic rests, ectopic tissue and the like are vulnerable to retrogressive degeneration and neoplasia, or to atypical functional disturbances confusing diagnostic inferences.

These tumor formations, whether they develop at the point of fetal origin of the tongue, the foramen cecum (clinically known as lingual goiters), or originate elsewhere in the structure of the tongue (intralingual goiter) or consist of formations in front of the larynx (prelaryngeal thyroid or pretracheal, superior mediastinal or retrosternal, etc., as the anatomical location may indicate) are designated as suggested in Lahey's classification.

The histologic entities in these various locations show practically all types of ordinary thyroid growths—areas of normal-looking acini, distended with diffuse, pink-staining colloid, occasionally showing definite functional activity; or dense connective tissue covered with degenerated columnar epithelium, suggestive of glandular proliferation resembling hyperthyroidism of the toxic nodular type.

A review of the literature shows that Hunt in 1865 reported 91 cases; Doré's thesis in 1922 contributed 81 cases, or a total of 172. Other writers have brought the total to 242. More recently, Cattell reported 2 cases in 7,600 operations on the thyroid at the Lahey Clinic, while Ulrich reported 2 cases in 4,000 at the University of Pennsylvania.

Thus the statistics and bibliography on the subject speak for the infrequency of the congenital formation at the base of the tongue or elsewhere, as well as clarify the subject from the collected information of various writers.

EMBRYOLOGY

According to His's embryology of the tongue, the anterior portion is developed from between the first and second branchial arches, forming dorsally the tuberculum impar, with evagination of the epithelium or median thyroid evagination deeply behind, while still further back and springing from the second and third branchial arches, the transverse elevation or copula, and the foramen cecum form the median thyroid

evagination, completing the development of the base of the tongue.

Thus the evolution of the base of the tongue, the pharyngeal pouch, the thyreoglossal duct are ultimately represented by the foramen cecum as the anlage or remains of the blind pouch which Bochdalek called the "canalis-excretorius linguae" and which His designated the "ductus lingualis."

The embryology as well as the trend of structural phenomena of tissue developing ectopically suggests possible alterations of function which we fail to understand until the gross pathology, with mechanical or other local disturbances, such as discharges or local bleeding, may explain the unusual syndrome. Just as we recognize the general functional and systemic manifestations met with in ectopic testicular remnants only when they interfere with endocrine balance and development of the bodily and mental functions, it would seem rational that the ectopic thyroid may exhibit functional dislocations difficult to diagnose until the local abnormality reveals itself.

We now come to the main purpose of this paper, to report the observation and treatment of a typical lingual goiter, not diagnosed as such, or even suspected, until the histological report of the removed growth revealed its identity.

CASE REPORT

A female, aged thirty-nine, of Italian ancestry but born in the United States, married, had three or four consecutive annual pregnancies, two of which resulted in full-term healthy children. Each of the gestation periods was accompanied with bleeding from the mouth in the sixth month of pregnancy.

Examination by her family physician determined the presence of a prominence at the base of the tongue. A surgeon was consulted who confirmed the presence of an enlargement at the base of the tongue, in front of or anterior to the epiglottis, and who used thermocautery in an effort to control the local bleeding, presuming, of course, that the growth was probably of malignant type. Curiously enough, the patient states that in each of her pregnancies, the bleeding did not begin until about the sixth month. An otolaryngologist who was consulted suspected malignancy and referred the patient to me.

On examination, I found a bilobate tumor at the base of the tongue, with a central depression or gutter corresponding to the foramen cecum from which the bleeding had been observed. In my clinical search for diagnostic conclusions I naturally leaned to malignancy, although the history of a three-year course without marked changes, either local or systemic, except for periodic bleeding, discouraged the assumption that we were dealing with an active malignancy. Treatment loomed up as the essential problem, laying aside, as of lesser importance, any effort to determine the nature of the growth. Biopsy we deemed obviously contraindicated.

The existence of a tumor at the base of the tongue, with periodic bleeding during gestation, while obscure diagnostically, indicated in our judgment the removal of the growth as the only method of approach to a cure. Having obtained the consent of the patient and family, I performed a preliminary low tracheotomy in order to institute general anesthesia by warmed ether insufflation through the tracheotomy tube. Ten days later I carried out the following radical operative technic:

Median, vertical incision of the lower lip and chin, down to the hyoid region; extraction of a central incisor tooth and division of the mandible mesially with a chain saw. The rami were retracted laterally, the tongue was drawn forward and the pharynx packed with moist sterile gauze to prevent blood entering the larynx or esophagus. The patient, in a semirecumbent position, was successfully anesthetized throughout the operation. The anterior faucial pillars were divided transversely in the mid-portion to permit freer dislocation forward of the base of the tongue; and the bilobate tumor was thoroughly resected from the base of the tongue, as it seemed to be surrounded with a capsule which was very vascular, though no infiltration of the tongue structure could be seen beyond the capsule.

The tumor, when removed, was the size of an English walnut, with two lateral lobes and a central gutter of scar tissue from repeated efforts at thermocoagulation to stop bleeding during gestation. Hemostasis was easily secured by clamp and ligature and the base of the tongue was perfectly reconstructed from its lateral pillars. The faucial wounds were now closed on both sides; the tongue was allowed to fall back into its normal position; the packing was removed from the pharynx; the jaw was sutured with silver wire; the lip, chin and neck were closed with subcuticular suture of chromic catgut. The healing of the wound was completed by primary union throughout. The approximation of the rami was such as to obliterate the vacant space left by the extracted tooth, and while two years later we were obliged to remove the wire suture because of local irritation, the cicatrix is perfect and function normal. The tracheotomy fistula healed by granulation, leaving no impediment whatsoever.

The histologic report made by the pathologist came to us as a complete surprise. He found nothing but thyroid parenchyma, with its characteristic acini and here and there colloid substance and connective tissue. The pathologist's impression was that because of the bilobar and thoroughly encapsulated makeup of the tumor, I had probably removed all of the thyroid tissue in this patient and that we should look for signs of hypothyroidism.

This patient has cooperated with us ideally in follow-up observation from year to year. She has enjoyed more than average good health for the past ten years and has gained weight. Her basal metabolic rate, her physical and mental energy have at no time

given rise to suspicion of hypofunction or thyroprivia.

On reflection, the location of the tumor, its benign slow growth, its swelling and bleeding coincident with uterine enlargement, resembling thyroid engorgement with the menstrual cycle in pubertal and adolescent goiter, the absence of pain, cachexia and loss of weight, might lead to suspicion of a thyroid type of growth of endogenous and embryonic origin. However, the limited incidence of this type of growth, consequently of experience, has and will probably continue to challenge diagnostic foresight.

SUMMARY

Lingual goiter is an uncommon lesion (250 cases have been reported), lacking in characteristic diagnostic signs. Tumors may develop at the point of fetal origin of the tongue or elsewhere in its structure or in front of the larynx. Histologically, all types of thyroid growths are exhibited.

The embryology of the structure is discussed by the author. A case is reported of a woman who bled from the mouth during gestation. A tumor removed from the tongue by median section of the mandible consisted entirely of thyroid parenchyma. For ten years the patient has been in good health, with no sign of thyroprivia.

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RÉSUMÉ

Thyroïde linguale

Le goitre linguale est une lesion pas commune (250 cas ont étés réportés), n'ayant pas des characteristics signes diagnostics. Des tumeurs peuvent se dévéloper dans le point de l'origin fetale de la langue ou ailleurs dans ses structures ou en front du larynx. Histologiquement tous les types de croissance thyroïdienne sont démontrés.

L'embriologie de cette structure est décrite par l'auteur. Un cas d'une femme qui saigna de la bouche pendant la grossesse est réporté. Une tumeur enlevée de la langue avec une section mediane de la mandibule était entièrement composé de parenchyme thyroïdien. Pour 10 années la malade avait été en bonne santé sans de signes de défaut thyroïdien.

ZUSAMMENFASSUNG

Zungen Schilddrüse

Lingualer Kropf ist ein seltenes Leiden (250 Fälle wurden beschrieben) mit Abwesenheit der charakteristischen diagnostischen Zeichen. Tumoren können sich an der fetalen Ursprungsstelle der Zunge oder anderwärts in ihrer Struktur, oder vor dem Larynx, entwickeln. Histologisch bieten sich alle Typen von Schilddrüsengewebe.

Die Embryologie der Struktur wird vom Autor besprochen. Es wird der Fall einer Frau berichtet, die während der Schwangerschaft aus dem Munde blutete. Der Tumor welcher durch einen Medianschnitt der Mandibula entfernt wurde bestand zur Gänze aus Schilddrüsenparenchym. 10 Jahre war die Patientin gesund ohne Zeichen von Thyreoprivia.

SUMARIO

Tiroides lingual

El bocio lingual es una lesión poco común (250 casos han sido reportados) careciendo de signo diagnóstico característico. El tumor puede revelarse en el punto del origen fetal de la lengua o en otra parte de su estructura o en la parte anterior de la laringe. Son estudiados histológicamente todos los tipos de crecimiento tiroideo.

La estructura embriólogica es discutida por el autor. Se reporta el caso de una mujer que sangraba por la boca durante el tiempo del embarazo. Se removió un tumor de la lengua, por sección media del maxilar, que estaba constituido por parenquima tiroideo. Durante 10 años el paciente ha estado gozando de buena salud y no ha presentado signos de privación tiroidea.

RIASSUNTO

Tiroide linguale

Il gozzo linguale è una lesione non comune che manca di caratteristici segni diagnostici; 250 casi sono stati riportati. Tumori possono svilupparsi nel punto dell'origine fetale della lingua o altrove nelle sue strutture o davanti alla laringe. Istologicamente si osservano tutti i tipi di crescita della tiroide.

L'embriologia di queste strutture viene discussa dall'autore. Viene riportato un caso di una donna che sanguinò dalla bocca durante una gravidanza. Un tumore asportato con una sezione mediana della mandibola consisteva interamente di parenchima tiroideo. Per dieci anni la paziente era stata in buona salute senza segni di deficenza tiroidea.

SCIENTIFIC AND COMMERCIAL EXHIBITS

Those interested in reserving space for their exhibits, please communicate at once with the following: For Mexico, Central America and South America, Dr. Manuel A. Manzanilla, Avenida Tamaulipas 60, Mexico, D.F. For the United States and Canada, Dr. Norman R. Goldsmith, 39-A Gramercy Park, New York City.

Thyroid Surgery

CONCLUSIONS BASED ON TWENTY YEARS OF PRACTICE

ARNOLD S. JACKSON, M.D., F.A.C.S.
MADISON, WISCONSIN

AFTER glancing through several hundred reprints on goiter, dating back to Kocher, the father of goiter surgery, I conclude that little about goiter remains to be discussed. However, at Dr. Crotti's kind invitation, I shall try to summarize some of the important facts relating to thyroid surgery which I have learned during twenty years' study of this problem.

DIAGNOSIS

As a student of Dr. Henry Plummer's, I became impressed with the importance of a correct diagnosis in thyroid disease before giving any consideration to surgery. It was Plummer who first differentiated between exophthalmic goiter and toxic adenoma; and whether or not one subscribes to this view, he must admit that there is a marked difference in their surgical treatment. For example, the ligation operations which were once so popular were of some temporary benefit in exophthalmic goiter, but of no value in toxic adenoma. This fact was brought out by Judd two decades ago.

When Plummer introduced the use of Lugol's solution in 1922, it was uncertain whether or not iodine would prove of as much benefit in toxic adenoma as in exophthalmic goiter. Articles appeared stating that both types responded equally well, but I believe these conclusions were incorrect. In a study of 279 cases of toxic adenoma operated upon at the Jackson Clinic, it was shown by Freeman and the writer in 1936 that approximately 62 per cent were benefited or not affected by iodine, while 38 per cent were made worse. Thus it is apparent that the diagnosis is of great importance. Otherwise, the thyroid surgeon may lean too heavily on iodine when operating upon toxic adenomas.

Not only is the preoperative improvement incomparable to the remarkable change effected by iodine in exophthalmic goiter, but the postoperative response likewise shows a great difference. The cause of death following thyroidectomy for toxic adenoma is undetermined, but death is not prevented by iodine. On the other hand, even the most severe postoperative reactions in exophthalmic goiter can usually be controlled by iodine, unless the patient is iodine-fast.

All cases of hyperthyroidism should be given iodine both before and after operation, because it is not always possible to establish a clear-cut diagnosis. Adenomas are associated with a hyperplastic gland in about one out of four cases. Giving iodine for a short period, such as one or two weeks, does little harm even to those cases of adenomata that react unfavorably.

In establishing a diagnosis of hyperthyroidism and in gauging the result of thyroidectomy, the metabolic rate is often of inestimable value. This much-abused test, however, is undoubtedly responsible for many serious errors in the diagnosis and treatment of goiter. Under the heading of "Needless Thyroid Surgery," I previously reported a series of one hundred cases in which operation had been advised for toxic goiter, but in all of which, it seemed to me, the thyroid gland was functioning normal-

ly. This report was given before the Hennepin County (Minnesota) Medical Society; at the same meeting Dr. Bell, professor of pathology at the University of Minnesota Medical School, reported an equal number of surgically removed thyroid glands which presented a normal appearance. This unfortunate condition undoubtedly prevails in other sections of the country where, because of the scarcity of goiter, the correct diagnosis is still more easily missed.

It is well, therefore, for the ambitious young surgeon who is expecting to do thyroid surgery to remember the words of Dr. Charles Mayo—that exophthalmic goiter should not be classed among the diseases requiring emergency operation.

PSYCHOLOGY

Psychology plays a more important part in the successful handling of the goiter patient than in the care of any other type of surgical case. The confidence of these patients must be built up step by step, so that instead of fearing operation, they look forward to it as a means of alleviating their symptoms. Rarely should surgery be discussed with hyperthyroid patients at the first visit. It is a good plan to tell them of similar cases, preferably of friends or acquaintances, and of people just as sick or sicker who regained their health by appropriate measures. It is also advisable to let them visit with those who are convalescing. The exophthalmic goiter patient who goes to the operating room in the proper frame of mind will usually have a much milder convalescence than the patient who is emotional and apprehensive. We frequently spend days preparing our patients, often using many doctors, nurses and patients to build up morale. It is our belief that psychology, iodine and surgical technic are the three most important factors in the successful treatment of exophthalmic goiter.

PREOPERATIVE USE OF IODINE

The use of iodine in relation to toxic goiter is a much-discussed and much-abused therapeutic measure. Preferably, all cases should receive iodine preoperatively from one to two weeks. Occasionally, advanced cases of exophthalmic goiter may require a few more days of preparation. Ninety-five per cent of patients will receive a maximum of benefit within this time unless they already have been taking iodine. At the 1925 meeting of the American Association for the Study of Goiter, I reported the first case of the latter type and suggested the term "iodine-fast." Patients who have become refractive to iodine have proved a serious surgical problem, and the unwarranted use of iodine over long periods of time has resulted in an increased mortality rate. Postoperatively, they react like patients seen in the pre-Lugol era, with a typical hyperthyroid crisis. They should be handled with great care; thyroidectomy is preferably done in two stages.

The amount of iodine given preoperatively does not seem to be a vital factor, Thompson feeling that as satisfactory results are obtained with one drop a day as with larger doses. This has not been my experience, however, and all my patients receive at least 30 drops a day during this period.

POSTOPERATIVE USE OF IODINE

Postoperatively, too, there is some disagreement. Davison, of Northwestern Medical School, reports that his patients have gotten along very well without any iodine. It has been my unfortunate experience to see three fatal postoperative crises occur as the result of failure of a nurse or intern properly to administer iodine. All of these patients had been successfully operated upon by excellent surgeons. In 1922, in the very early days of Lugol's solution, I nearly lost a patient because the head nurse misplaced the only available bottle and the

patient was without iodine for several hours following thyroidectomy. We give our exophthalmic goiter patients from ten to twenty doses of Lugol's solution (10 minims each). If this does not maintain a satisfactory condition, Lugol's is given by rectal instillation, subcutaneously, by duodenal tube or, rarely, intravenously.

As previously stated, iodine is seldom a deciding factor in the postoperative recovery of patients with toxic adenoma. We routinely give three doses of 10 minims each, hoping that it may be of some benefit. Rarely does it seem to influence the outcome. These patients receive no iodine after a week, but it is important to continue giving it to the hyperplastic type of patient for months. It is impossible to state a fixed time, because patients must be treated individually according to the rate of recovery, the amount of weight gain and the metabolic rate.

ANESTHESIA

Anesthesia has been a very important factor in our surgical treatment of hyperthyroidism. Only once during the past twenty years have we used a general anesthetic, and this was at the particular request of a friend. Since that time all similar requests have been refused, because we feel that local anesthesia preceded by phenobarbital, pantopon and scopalomine is an ideal anesthetic.

We have never seen any harmful effects from scopalomine when used in small doses, such as 1/150 gr. for patients under fifty years of age and 1/200 gr. for patients over this age. In 1928 a superficial nerve-block anesthesia, which blocks off the cervical sympathetic nerve supply, was developed. This method proved much more satisfactory than infiltration anesthesia, because it does not distort the anatomical structures with novocain edema. It is a simple method to learn, takes but a few moments to do, and gives a perfect anesthesia.

COMPLICATIONS

Most surgeons doing goiter operations sooner or later encounter the various unfortunate complications attendant upon thyroidectomy. Of these, hemorrhage, tetany and nerve injury are the most important. Hemorrhage can best be avoided by sharp dissection of the capsule rather than stripping with the finger, thus avoiding injury to the median or lateral branch to the jugular. In delivering an intrathoracic goiter, great care must be exercised in not stretching the veins until they tear. Rather, the gland should be removed from within the capsule until such tension is relieved. At completion of the operation, if local anesthesia is used, the patient can be asked to cough and any bleeding points may then be easily located.

It has been my good fortune to have had no cases of postoperative tetany since 1926. This complication can be avoided by using the following technic: In resecting the goiter, tend to hollow it out within its capsule, as one would scoop out an egg from its shell. Of course, this process must not be carried too deeply, or there will be danger of injury to the nerve. By staying inside the capsule and leaving at least one-half of it on the lateral walls, the possibility of tetany is practically eliminated. This lateral shell of tissue can be hollowed out very thin, so that in the hyperplastic type of gland too much tissue is not allowed to remain. Operation may best be performed by use of the electrosurgical loop.

Probably the two most likely points of nerve injury are at the inferior poles and along the lower lateral borders of the gland. At the lower poles, the hemostats should always be placed so that gland tissue is clearly seen beneath them. The amount left depends upon the type of gland; in adenomatous goiter it is always better to leave more tissue.

If the technic described above for avoiding injury to the parathyroid glands is fol-

lowed, danger of injury to the recurrent laryngeal nerves is minimized.

There are many other important points concerning thyroid surgery that should be considered, but if the younger surgeon, for whom these suggestions are offered, will overcome these principal obstacles, his problems will be simplified.

SUMMARY

The author was early impressed with the importance of differentiating between exophthalmic goiter and toxic adenoma as a basis for correct use of iodine. In a study of 279 cases of toxic adenoma the author found that 62 per cent were benefited or not affected by iodine, while 38 per cent were made worse.

Postoperatively, iodine does not prevent death in toxic adenoma as in exophthalmic goiter. All cases of hyperthyroidism, however, should be given iodine before and after operation to avoid danger of error in diagnosis.

Many needless goiter operations are the result of errors in metabolism tests. The author considers psychology, iodine and surgical technic the three most important factors in successful treatment of exophthalmic goiter.

The term "iodine-fast" is suggested for patients with exophthalmic goiter who have been kept on iodine so long that it is no longer of benefit. The author usually gives 30 drops a day preoperatively for one to two weeks, and from 10 to 20 doses (of 10 minims each) in the twenty-four hours after operation. Iodine is given for a week postoperatively in cases of toxic adenoma but is usually continued for several months in exophthalmic goiter.

For anesthesia, the superficial nerve-block method, with the additional use of scopalomine and pantopon, is employed. Special operative technics are recommended for avoiding complications of hemorrhage, tetany and nerve injury.

RÉSUMÉ

Chirurgie sur la thyroïde

L'auteur fut tôt impressioné par l'importance de différentier entre goitre exophtalmique et adenome toxique comme la base pour un correct usage du iode. Dans un étude de 279 cas de adenome toxique l'auteur trouva que 62% étaient benefiés ou pas touchés par le iode, tandis que 38% devenirent plus malades. Après l'opération le iode ne prévient pas la mort dans l'adenome toxique ni dans le goitre exophtalmique. Tous les cas de hyperthyroïdisme, cependant, devraient recevoir le iode avant et après l'opération pour éviter le danger d'erreur dans le diagnostique.

Beaucoup d'opérations pas necessaires pour le goitre sont le résultat d'erreurs dans les épreuves du metabolisme. L'auteur considère la psychologie, le iode et la téchnique chirurgicale les trois plus importants facteurs dans le traitement heureux du goitre exophtalmique.

Le terme "iodo-résistant" vient suggeré pour les malades avec goitre exophtalmique qui ont recu le iode depuis si longtemps que il n'est plus d'aucun profit. L'auteur generalement donne 30 gouttes par jour avant l'opération pour une ou deux sémaines, et de 10 a 20 doses (de 10 minims chacune) dans le 24 heures après l'opération. Le iode est donné pour une sémaine après l'opération dans les cas de adenome toxique, mais il est generalement continué pour plusieurs mois.

Pour l'anesthesie la méthode du bloc superficial du nerve avec l'usage additionel de scopolamine et pantopon, est employé. Des téchniques opératives speciales sont récommendées pour éviter complications de hemorragie, tetanie ou dommage des nerves.

ZUSAMMENFASSUNG

Schilddrüsenchirurgie

Der Autor war schon frühzeitig überzeugt, dass als Basis für eine korrekte

Jodanwendung, zwischen exophthalmischen Kropf und toxischen Adenoma unterschieden werden muss. Der Autor fand beim Studium von 279 Fällen von toxischen Adenoma, dass 62 per cent durch Jod gebessert oder nicht beeinflusst wurden, während 38 per cent verschlechtert wurden. Postoperativ verhindert Jod bei toxischen Adenoma nicht den Tod des Patienten wie bei exophthalmischen Kropf. Es soll jedoch bei allen Fällen von Hyperthyreoidosen vor und nach der Operation Jod verabreicht werden, um der Gefahr einer Fehldiagnose vorzubeugen.

Viele unnotwendige Kropfoperationen sind die Folge von falschen Grundumsatzbestimmungen. Der Autor hält Psychologie, Jod und chirurgische Technik für die drei wichtigsten Faktoren der erfolgreichen Behandlung von exophthalmischen Kropf.

Der Ausdruck "Jod-fest" wird für Patienten mit exophthalmischen Kropf vorgeschlagen, welche so lange unter Jod standen, dass es bereits seine Wirksamkeit verloren hatte. Der Autor verabreicht gewöhnlich postoperativ 30 Tropfen täglich für 1-2 Wochen und zwischen 10 bis 20 Dosen (von 10 minims jede) in den vierundzwanzig Stunden nach der Operation. Jod wird postoperativ eine Woche lang in Fällen von toxischen Adenoma gegeben, wird aber gewöhnlich für mehrere Monate bei exophthalmischen Kropf fortgesetzt.

Als Anaesthesie wird die oberflächliche Nerven-Block Methode mit Zusatz von Scopolamin und Pantopon verwendet. Es werden spezielle operative Methoden zur Vermeidung von Komplikationen wie Blutungen, Tetanie und Nervenverletzungen, empfohlen.

SUMARIO

Cirugia del tiroides

El autor piensa que es de gran importancia la diferenciación entre el bocio exoftalmico y el adenoma tóxico para el correcto uso del yodo. En un estudio de 279 casos de adenoma tóxico el autor econtró que el 62 por ciento fueron beneficiados o no afectados por el yodo, mientras que el 38 por ciento empeoraron. En el postoperatorio, el yodo no evitó la muerte en el adenoma tóxico, como en el bocio exoftalmico. En todos los casos de hipertiroidismo, se dará yodo antes y despues de la operación para evitar el peligro de un error en el diagnóstico.

Muchas operaciones innecesarias del bocio son el resultado de errores en las pruebas del metabolismo. El autor considera que los datos fisiológicos, el yodo y la técnica quirúrgica, son los tres principales factores para un buen éxito en el tratamiento del bocio exoftalmico.

El término "abstinencia de yodo" se sugiere para pacientes con bocio exoftalmico quienes han estado tomando yodo más del tiempo que se requiere para obtener beneficios. El autor generalmente da 30 gotas al día antes de la operación, por espacio de una a dos semanas y de 10 a 20 dosis (de 10 como mínimo cada una) veinticuatro horas despues de la operación. El yodo es dado por espacio de una semana despues de la operación del adenoma tóxico, en tanto que en el bocio exoftalmico se continua dando por varios meses.

Para la anestesia, se usa el bloqueo superficial del nervio, por la Escopolamina y Pantopon. Técnicas operatorias especiales son recomendadas para evitar complicaciones por hemorragia, tétanos y herida del nervio.

RIASSUNTO

Chirurgia tiroidea

L'A. fu colpito dall'importanza della differenza tra gozzo esoftalmico e adenoma tossico come base per un corretto uso dello iodio. In uno studio di 279 casi di adenoma tossico l'A. trovò che 62% trassero beneficio o non furono affetti dallo iodio, mentre 38% peggiorarono. Dopo l'opera-

zione lo iodio non previene la morte nell'adenoma tossico o nel gozzo esoftalmico. Tutti i casi di ipertiroidismo tuttavia dovrebbero ricevere iodio prima e dopo l'operazione per evitare il pericolo di errori nella diagnosi.

Molte operazioni sul gozzo non necessarie sono il risultato di errori nelle prove sul metabolismo. L'A. considera psicologia, iodio e tecnica chirurgica i tre più importanti fattori nel trattamento fortunato del gozzo esoftalmico.

Il termine "iodio-resistente" viene suggerito per i pazienti con gozzo esoftalmico che hanno ricevuto iodio per così lungo tempo che non è più di alcun effetto. L'A. di solito dà 30 gocce al giorno prima della operazione per una o due settimane, e da 10 a 20 dosi (di 0.6 grammi ciascuna) nelle 24 ore dopo l'operazione. Lo iodio viene dato per una settimana dopo l'operazione nei casi di adenoma tossico, ma è generalmente continuato per parecchi mesi nel gozzo esoftalmico.

Per l'anestesia viene usato il metodo del blocco superficiale del nervo con in più l'uso della scopolamina e del pantopon. Speciali tecniche operative vengono raccomandate per evitare complicazioni di emorragie, tetano e lesioni nervose.

INTERNATIONAL ASSEMBLY HEADQUARTERS

Headquarters for the meeting of the International Assembly of the International College of Surgeons, August 10 to 14, 1941, will be at the Hotel Reforma, Mexico, D.F. Date of the meeting of the House of Delegates will be announced later.

A New and Function-Restoring Operation for Bilateral Abductor Cord Paralysis

SECOND REPORT

BRIEN T. KING, M.D.
SEATTLE, WASHINGTON

IN the March 4, 1939, issue of the *Journal of the American Medical Association*, I made a preliminary report on "A New and Function-Restoring Operation for Bilateral Abductor Cord Paralysis." At the time of that report, three patients had been subjected to the operation and the results obtained in those cases seemed to warrant a report of the procedure and a discussion of the theories upon which it had been developed.

Since then twenty-five additional patients have been operated on, and it now seems fitting to report such new ideas as have been gained from a larger experience, and to alter some of those set forth in my preliminary report.

It must be understood first that all motor nerve paralyses are in general principle the same. The only differences in motor nerve paralyses in various parts of the body are due to losses of the respective functions of the affected muscles.

Take, for example, the muscles of the larynx and those in the forearm, which serve very different purposes. The pathologic changes that take place in the affected muscles are the same in both. There is first flaccid paralysis, followed by atrophy, fibrosis and contractures. Contractures of muscles in the hand and forearm produce one set of deformities, contractures in the muscles of the larynx an entirely different set of physiologic and clinical disturbances.

INJURIES TO RECURRENT LARYNGEAL NERVES

All the muscles of the larynx are supplied by two sets of nerves, the superior and inferior (or recurrent) laryngeal nerves. The recurrent nerves supply all the abductor and adductor muscles of the vocal cords as well as the constrictors of the glottis. The superior laryngeal nerves supply only the cricothyroid muscles. The function of this pair of muscles is to alter the anteroposterior diameter of the larynx. In so doing they act as tensors of the vocal cords (see Figs. 1, 2 and 3).

The larynx has three functions:

1. Air exchange.
2. Sound production.
3. Defense against the entrance of other substances than gases into the lung.

All these functions are primarily controlled by the muscles supplied by the recurrent nerves. The cricothyroid muscles affect only the pitch of the voice.

When injury to both recurrent nerves takes place, there is immediate loss of voice and loss of the defensive mechanism. Air exchange may or may not be seriously disturbed as an initial symptom. That depends upon the position of the cords immediately following paralysis. In the majority of instances, the cords assume a modified cadaveric position and are in a very relaxed or flaccid state. There is a tendency for the cords to be sucked into the cricoid ring and partially obstruct the inflowing air cur-

rent. The degree of obstruction depends upon the extent to which the cords and the conus elasticus are sucked into the ring of the cricoid cartilage.

Following bilateral recurrent nerve paralysis, immediate tracheotomy may be necessary to prevent suffocation. As a rule, the immediate degree of obstruction is not sufficient to necessitate tracheotomy. It is characterized, however, by inspiratory stridor and complete loss of voice, except for a whisper which is not a laryngeal sound. There is also loss of the function of the defensive mechanism. This allows fluids to enter the larynx and trachea. If a patient dies in the first few days following bilateral recurrent nerve paralysis, death is due to suffocation, or to drowning in the patient's own secretions, or to ingested fluids, or to a combination. Death may also occur because of pneumonia of a foreign substance type.

If immediately following injury to both recurrent nerves, marked respiratory embarrassment develops, tracheotomy should be performed at once. The wound will become infected, but the danger from such infection is far less than that which results from the respiratory obstruction which develops in a certain percentage of nerve injuries.

RETURN OF FUNCTION

The defensive mechanism is the first to return to function. This comes about so early that it cannot be explained on any other basis than a change in swallowing habits on the part of the patient. The epiglottis does not normally close the larynx like a trap door. In conjunction with the constrictors of the glottis, it closes the larynx and shunts food and fluids laterally into the pyriform fossae. At the same time the suprahyoid group of muscles elevates the larynx, which opens the esophagus to the reception of food or fluids. Within a few days patients learn to swallow in small amounts, and with the aid of the unparalyzed muscles of swallowing, this difficulty is soon partially rectified.

Changes that occur in the vocal mechanism are much more slowly rectified. They are not much, if at all, affected by the patient's training or efforts. The cords are at first relaxed in the cadaveric position. As fibrosis and contractures take place, the cords gradually are drawn into the midline position. As the contractures increase and the cords are drawn closer together, the problem of air intake becomes increasingly difficult. A period of six months to one year usually elapses between paralysis and pronounced obstructive dyspnea. In the past, about half of the persons so affected have had permanent tracheotomy. The others are in large measure chronic invalids.

Few surgical accidents or complications are followed by such tragic sequences as bilateral cord paralysis. Two patients I operated on had been taken off the street in a state of coma or suffocation anesthesia and rushed to hospitals where tracheotomy was performed without the need of anesthetic drugs. About one half of such patients are wearing tracheotomy tubes when examined.

The sequence of events in the average case is briefly as follows: immediate loss of voice, stridor, difficulty in swallowing—especially fluids, improvement in capacity to swallow, temporary improvement in stridor. In a few months the voice begins to return, dyspnea begins to develop. As the voice improves, dyspnea is intensified. Stridor gradually returns with improvement in the voice. It becomes so loud during sleep that many of the patients are social outcasts.

THEORY OF OPERATION

When I first began to experiment with this problem, it was on the theory that a muscle might be transposed to the arytenoid cartilage and subsequently develop a capac-

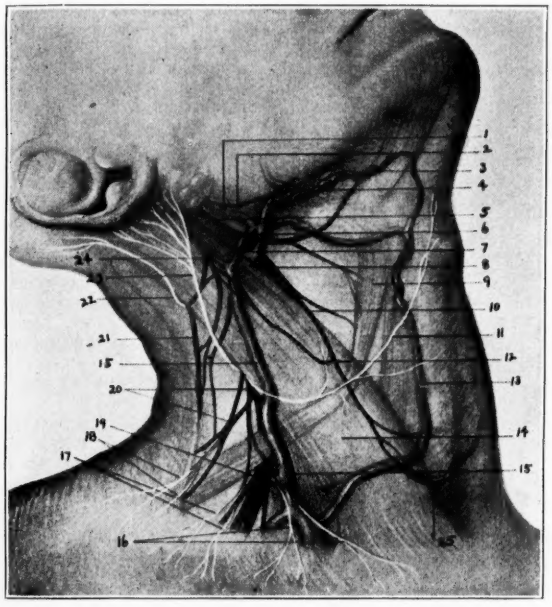
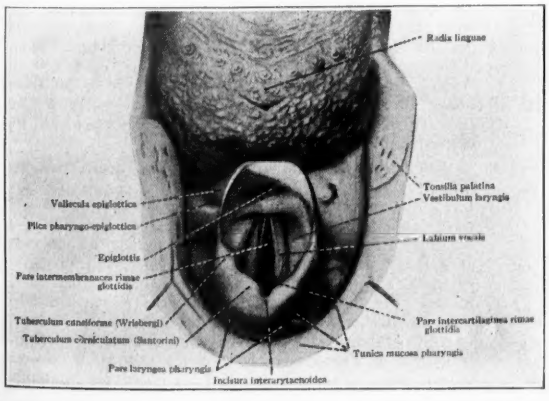


Fig. 1. Nerve supply to the omohyoid muscle. (Figs. 1 and 2 are reproduced from Callandar, C. L.: Surgical Anatomy, Philadelphia, W. B. Saunders Company, 1933.) 1, Ramus marginalis mandibula nervi facialis; 2, vena facialis posterior; 3, vena submentalis; 4, vena facialis anterior; 5, nervus hypoglossus; 6, vena auricularis posterior; 7, vena facialis communis; 8, vena jugularis interna; 9, musculus omohyoideus; 10, ramus descendens nervi hypoglossi; 11, nervus cutaneus colli; 12, nervus ansa hypoglossi; 13, vena jugularis anterior; 14, musculus sternocleidomastoideus; 15, vena jugularis externa; 16, nervi supraclaviculares anteriores; 17, nervi supraclaviculares medii; 18, nervi supraclaviculares posteriores; 19, plexus brachialis; 20, trunks of supraclavicular nerves; 21, ramus externus nervi accessorii; 22, nervus occipitalis minor; 23, nervus auricularis magnus; 24, nervus cervicalis III; 25, arcus venosus jugularis.



←Fig. 2. The posterior portion of the tongue and its relation to the aditus of the larynx. (After Sobotta.)

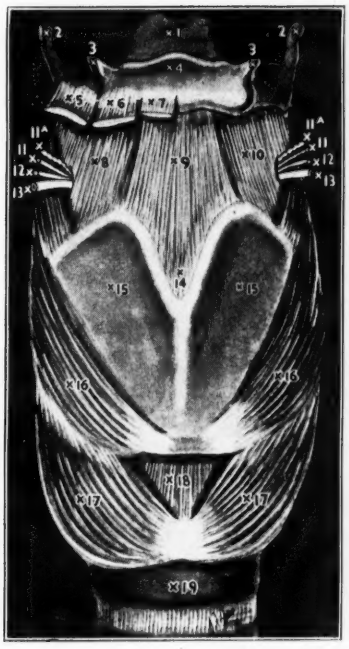


Fig. 3. Hyoid bone, thyroid cartilage and external ligaments and muscles of larynx. (Figs. 3, 4, 5 and 6 are reproduced from Barnhill, J. F.: Surgical Anatomy of the Head and Neck, Baltimore, William Wood & Co., 1937.) 1, Epiglottis; 2, 2, superior horns of hyoid bone; 3, 3, lesser horns of hyoid bone; 4, body of hyoid bone; 5, thyrohyoid muscle; 6, omohyoid muscle; 7, sternohyoid muscle; 8, 9, 10, fasciculi of thyrohyoid ligament; 11A, exit of lymphatic trunk from larynx; 11, exit of vein from larynx; 12, entrance of superior laryngeal nerve; 13, entrance of internal branch of superior laryngeal artery; 14, thyroid notch; 15, 15, wings of thyroid cartilage; 16, 16, fasciculi of inferior constrictor muscle; 17, 17, cricothyroid muscles; 18, cricothyroid membrane (middle cricothyroid ligament); 19, cricoid cartilage.

ity to replace the function of cricoarytenoideus posticus muscle. It was hoped that the cords could thus be opened on inspiration and allowed to close to the phonation position during relaxation of the transposed muscle. On the cadaver this principle seemed to work satisfactorily.

In cases of long-standing bilateral cord paralysis some new problems were encountered, chief among which was an immobile cricoarytenoid joint. These joints were in a state of fixation that in effect amounted to ankylosis. It was necessary to cut the joint capsule to re-establish motion in the joint. When a suture was placed through or around the arytenoid cartilage submucously and traction made on the suture, the cord on that side was found, on observation through a laryngoscope, to open readily. If traction was not continuous on the suture, the cord had a decided tendency to resume the midline position. By drilling a hole in the thyroid cartilage and passing the suture through it and then tying it, the cords remained separated. So the operation that was conceived as a method of opening the cords by the use of an extraneous muscle in actuality developed into a new method of cord displacement. In all but one of the operations I have performed for cord paralysis, the omohyoid has been transposed.

The suture material used for anchoring the arytenoid cartilage to the thyroid is catgut. A special needle is needed to surround the cartilage, as this is the most difficult technical detail in the entire operation. (Davis and Geck have manufactured an atraumatic needle threaded with no. o chromic gut and marketed under no. P-271, which will be found of great value in performing the operation.)

OPERATIVE TECHNIC

An incision, 2½ to 3 inches long, is made down the anterior border of the sternomastoid muscle, passing through the skin and platysma muscle. The tissues between the sternomastoid and the lateral wall of the thyroid cartilage are separated. This will bring the omohyoid into view. The inner border and posterior surface are carefully avoided, except for a distance of ¾ inch nearest to its attachment to the hyoid bone. Branches of the descendens hypoglossi enter the outer border, also its blood supply. It is very important to avoid injury to these.

The muscle is then ligated with chromic catgut from ½ to ¾ inch below the hyoid bone. The muscle is unfortunately too long to exert traction on the arytenoid cartilage unless shortened to the proper length. Its tendinous attachment to the hyoid bone cannot be used for attachment to the arytenoid cartilage because of the excessive length of the muscle. The sheath of the muscle is so thin that it offers little support to sutures. This problem was met by ligating the muscle belly with chromic catgut about ¾ inch below the hyoid bone and dividing the muscle distally to the ligature. The ligature thus creates a cuff behind which sutures hold in a satisfactory manner.

There is a space of about 1½ inches along the outer border of the thyroid cartilage in which no important structure is encountered. It extends from the tip of the superior cornu of the thyroid cartilage to the inferior cornu. Above the tip of the superior cornu there is danger of injury to the internal division of the superior laryngeal nerve. At the inferior cornu there is danger of injury to the external division of the same nerve. Along the border of the thyroid cartilage are to be found the attachments of the inferior constrictor of the pharynx. These fibers must be cut. The pharyngeal mucosa is then exposed. The pharyngeal mucosa does not contain either longitudinal or circular fibers beneath it, as does the esophagus, and care must therefore be exercised in separating it from the posterior surface of the cricoid cartilage.

The arytenoid cartilages articulate with the cricoid on its posterior and outer borders. They, with the cartilages of Wrisberg and Santorini, act like corset stays in a rather thin wall that separates the openings of the larynx and esophagus. The arytenoid cartilages sit on a facet-like joint and extend upward for about ½ inch. The pharynx must be separated from the posterior spinous border of the arytenoid cartilage. In this dissection, one must be careful to avoid making an opening into either the pharynx or the larynx. The muscular process of the arytenoid cartilage will be exposed in this maneuver. Immediately beneath the muscular process is the facet-like joint. This, like any joint that has been immobilized for years, is stiff and its ligamentous capsule contracted. I have found it necessary to mobilize the arytenoid cartilage by cutting the ligamentous capsule of its joint on three sides, the mesial, the outer, and the posterior, the last of which also divides the atrophic fibers of the cricoarytenoideus posticus muscle.

When the pharyngeal mucosa has been dissected out of the pyriform fossa and away from the posterior cricoid region as far as the midline, it is well first to identify the muscular process of the arytenoid cartilage. Then slip a sharp knife under this process. It will enter the joint. The capsule is then thoroughly divided. This very definitely establishes helpful landmarks. The interarytenoideus muscle is then divided near the arytenoid cartilage. This adds to the mobility of the cartilage and cuts the contractural ring of the glottis. It is then desirable to place two no. 0 chromic catgut sutures around the cartilage, one for fastening

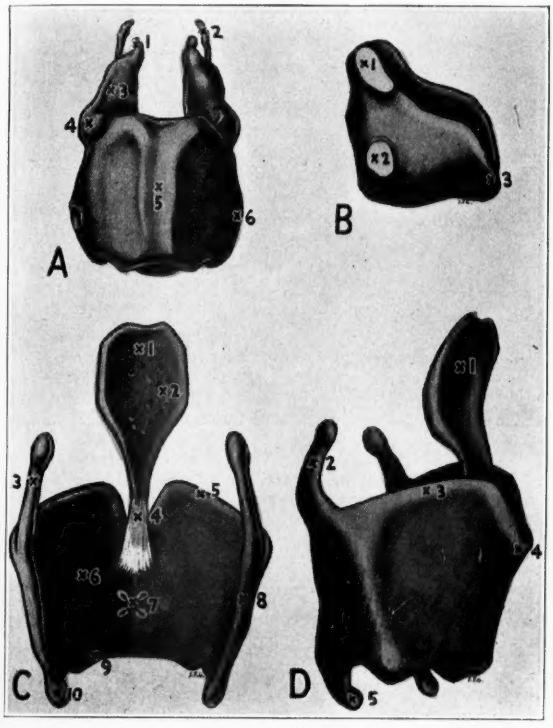
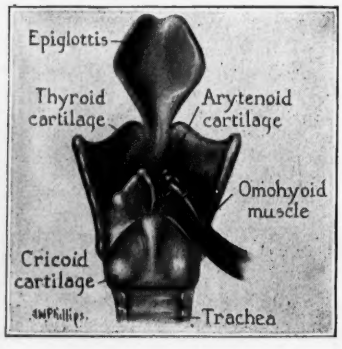


Fig. 4. A, Posterior view of cricoid and arytenoid cartilages: 1, corniculate cartilage; 2, cuneiform cartilage; 3, arytenoid cartilage; 4, muscular process of arytenoid cartilage; 5, median ridge, posterior surface of cricoid cartilage; 6, lateral view of cricoid cartilage. B, Lateral view of cricoid cartilage (note wide posterior portion, making a completed ring): 1, facet for articulation with arytenoid cartilage; 2, facet for articulation with lower horn of thyroid cartilage; 3, anterior part of cricoid ring. C, Thyroid cartilage from behind, showing interior surface: 1, epiglottis; 2, pits for glands in epiglottis; 3, superior cornu of thyroid cartilage; 4, ligament of epiglottis; 5, superior rim; 6, interior surface of thyroid cartilage; 7, site for anterior attachment of true and false vocal cords; 8, posterior margin of cartilage; 9, inferior margin; 10, inferior cornu. D, Lateral view of thyroid cartilage: 1, epiglottis; 2, superior cornu; 3, superior margin; 4, notch of thyroid cartilage; 5, inferior horn.

Fig. 5. Anteroposterior section of larynx, showing left half. Mucosa has been removed from muscles. The superior and recurrent laryngeal nerves are shown supplying the internal muscles. 1, Superior laryngeal nerve; 2, external branch; 3, internal branch; 4, superior horn of thyroid cartilage; 5, main branch of internal laryngeal nerve; 6, epiglottis; 7, 8, corniculate cartilages; 9, 9, cut edge of thyroid cartilage midline; 10, 10, cricothyroid muscle; 11, branch of recurrent nerve entering arytenoideus posticus; 12, section of esophagus behind cricoid cartilage; 13, rings of trachea; 14, recurrent laryngeal nerve. A branch of recurrent laryngeal nerve is shown entering cricoarytenoideus posticus. Immediately above the cricoarytenoideus posticus the recurrent nerve enters the cricoarytenoideus lateralis, and just above the latter it enters the thyroarytenoideus. Only the external branch (2) of the superior laryngeal nerve enters any muscle. All other branches go to the mucosa and are cut off, as shown. The recurrent nerve (14) supplies all the intrinsic muscles except the cricothyroideus (10).

Fig. 6. Posterior view of larynx and upper part of trachea. Some of the intrinsic muscles are shown. A study of these muscles, their attachments and the laryngeal cartilages will give a good understanding of the muscular function. 1, Epiglottis, running downward and backward, from which on either side is the airy epiglottis ligament (the little swellings on this ligament indicate the position of the cuneiform and corniculate cartilages); 2, superior cornu of thyroid cartilage; 3, inner surface of thyroid cartilage; 4, 4, 4, arytenoideus, showing different direction of its fibers; 5, posterior surface of cricoid cartilage; 6, cricoarytenoideus posticus; 7, upper tracheal rings.



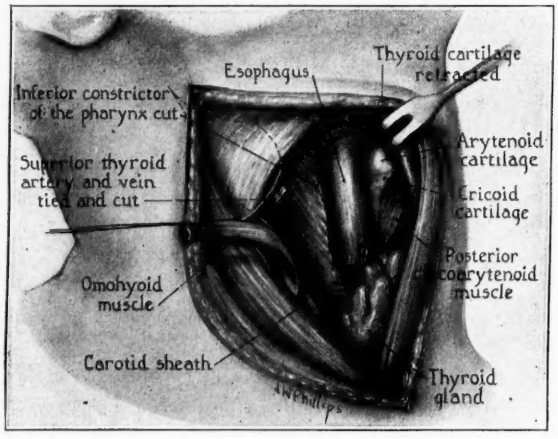


Fig. 7. The inferior constrictor of the pharynx and the superior thyroid artery and vein tied and cut.

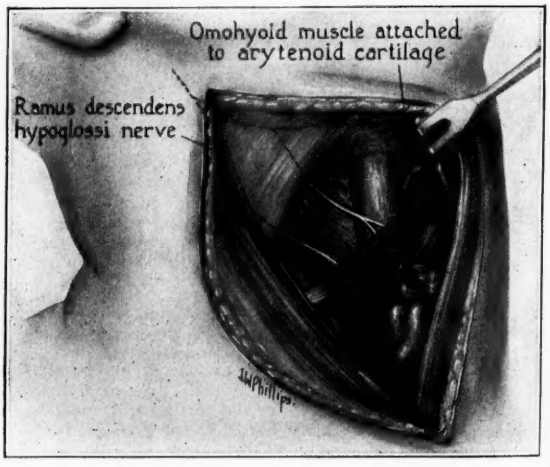


Fig. 8. The omohyoid muscle attached to the arytenoid cartilage.

←Fig. 9. Procedure in cases of early involvement; reconstruction features omitted.

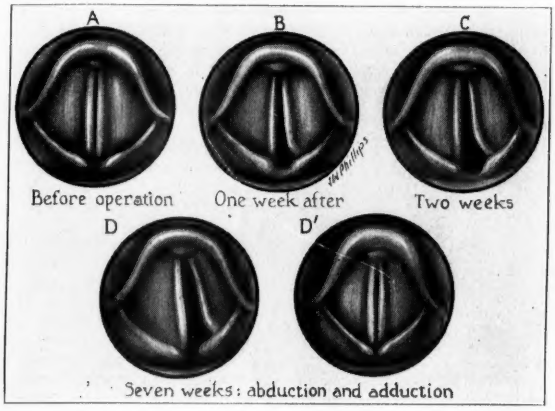


Fig. 10. The vocal cords in action.

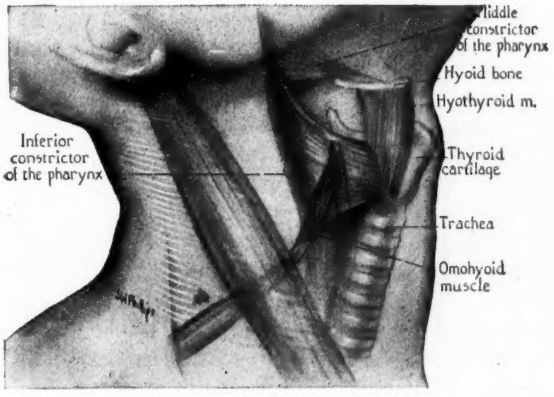


Fig. 11. The new position of the omohyoid at the close of the operation.

Fig. 12. Note particularly the muscle fibers of conus elasticus and membrana quadrangularis. In recent paralysis these membranes are flaccid; later they are involved in the contractures. (Figs. 12 and 13 are from Spalteholz, Werner: Hand Atlas of Human Anatomy, Philadelphia, J. B. Lippincott Company, vol. 3.)

Fig. 13. Note that the musculis aryepiglotticus is an offshoot of the interarytenoideus muscle.

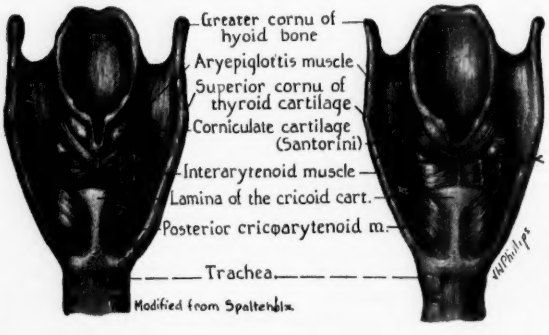


Fig. 14. Severing the interarytenoideus muscle and fascia and anchoring the arytenoid temporarily to the thyroid cartilage.

the muscle, the other for displacing the cartilage outward. If difficulty is encountered in this maneuver, one suture can be used for both purposes.

The cut fibers of the inferior constrictor of the pharynx are then sutured. This leaves the omohyoid passing through an aperture in the inferior constrictor. The platysma is closed with two or three interrupted catgut sutures and the skin with clips.

Experience has shown that it is best to operate on only one side if a good result is secured. If insufficient airway still exists, the other side should be operated on.

In the early group of cases an attempt was made to pass sutures through the arytenoid cartilage. In older patients the cartilage is frequently ossified and fractures easily upon efforts to pass a needle through it. It was found easier and better to pass the needle around the cartilage, hugging it closely, so as to avoid entering the larynx. If a small skin hook is first placed around the midportion of the cartilage, it will greatly facilitate surrounding it with a suture. If one is a right-handed operator, it will be found easier to operate on the left side, as the passage of the suture around the arytenoid cartilage must be done from the midline outward.

OPERATIVE RESULTS

As stated earlier, the omohyoid has been transposed in 27 of the 28 patients operated on. In the instance in which it was not transposed, a better than average airway was secured, also a voice of almost average volume. However, neither the voice nor the airway equalled the best results obtained.

In 2 patients the lower half of the arytenoid cartilage was removed because of fractures of the cartilage. In both instances a good airway and good voice were obtained, though not quite up to average.

All but two, or 26, of the patients can bring the vocal cords into apposition during phonation efforts. A careful study of the cases brought about the surprising observation that while the patients can both open and close the cords, the larger range of motion develops in the unoperated cord. Frequently, the unoperated cord will pass beyond the midline during phonation efforts to contact the displaced cord. As well as I can determine, this motion is the result of the tensor action of the cricothyroid muscles. The action of those muscles is to increase the anteroposterior diameter of the larynx. This results in the vocal bands being drawn toward the midline.

In two instances the cords were so widely separated that poor approximation of the cords has resulted. Air escape is so rapid that less vibration ensues, and the voices of these patients are weak. However, one of them is a trained nurse and has been doing special duty nursing for more than one year.

Postoperative results may be summarized according to several different criteria: the production of adequate airway, the ability to be rid of the tracheotomy tube, vocal capacity, and the ability to work. The voice might be graded on the degree of strength. Of the 28 patients operated upon, 23 have adequate airway and the tube has been removed. In 25 there is a fair to good voice. All 28 can engage in conversations over the telephone. It is believed that with the knowledge gained from this experience better results will be secured in the future.

Several of the patients are employed, one as a dancing teacher. Two men only have been operated upon. One is a "trouble shooter" in a large telephone exchange; the other is a hardware merchant. Both get along well in their respective occupations. A majority of the others are housewives who are doing all their own housework. About half of them had been wearing permanent tracheotomy tubes from six months to fourteen years. The paralyses had been present from nine months to twenty-one years. All but two followed thyroidectomy; these two followed infections.

In no group of patients that I have encountered have gratitude and appreciation for relief approached the feelings of these patients.

No one should attempt this operation without first gaining a thorough knowledge of the anatomy and physiology of the larynx, plus a knowledge of the anatomy and physiology of all neighboring muscles and structures. After that is acquired, the technic should be practiced on unembalmed cadavers. Embalmed cadavers are useless.

SUMMARY

The author describes in detail a new operation for the relief of obstructed dyspnea in patients affected with paralysis of both vocal cords.

The pathology of the larynx following paralysis of the recurrent laryngeal nerves is the same as in paralysis of any peripheral motor nerve—flaccid paralysis, atrophy, fibrosis, contractures. A plea is made for earlier, elective tracheotomy.

Favorable results are reported in a series of 28 patients operated upon by the new technic.

RÉSUMÉ

Une nouvelle opération qui ramène la fonction dans la paralysie bilaterale de l'adducteur des cordes

L'auteur décrit en détail une nouvelle opération pour le soulagement de la dyspnée obstructive dans les malades avec paralysie des deux cordes vocales.

La pathologie du larynx qui suit la paralysie des nerfs laringéales récurrents est la même de chaque paralysie de quelque soit nerf moteur-paralysie flaccide, atrophie, fibrose, contractures. Précoce élective tracheotomie est conseillée.

Des résultats favorables sont reportés dans une série de 28 malades opérés avec la nouvelle technique.

ZUSAMMENFASSUNG

Eine neue, Funktion-wiederherstellende Operation bei bilateraler Abductor Cord Paralyse

Der Autor beschreibt genau eine neue Operation zur Behebung von obstruktions Dyspnoe, bei Patienten welche an Paralyse beider Stimmbänder leiden.

Die Pathologie des Larynx, welche auf Paralyse des Nervus recurrens folgt ist die gleiche, als die bei Paralyse irgend eines peripheren motorischen Nerven.—schlaffe Lähmung, Atrophie, Fibrosis, Kontrakturen. Frühzeitige Tracheotomie wird vorgeschlagen.

Es wird über günstige Erfolge in einer Serie von 28 Patienten berichtet, welche mit der neuen Technik operiert wurden.

SUMARIO

Una nueva técnica operatoria para restaurar la función despues de la parálisis bilateral de los abductores de las cuerdas vocales

El autor describe en detalle una nueva técnica operatoria para aliviar la disnea obstructiva en pacientes afectados de una parálisis de ambas cuerdas vocales.

El estado patológico de la laringe, que sigue a una parálisis de los nervios recurrentes laringeos es el mismo que se presenta en cualquier parálisis de un nervio periférico motor (parálisis flácida, atrofia, fibrosis, contracturas). La operación consiste en una temprana traqueotomía.

Favorables resultados son reportados en una serie de 28 pacientes quienes fueron operados con la nueva técnica.

RIASSUNTO

Una nuova operazione che ristora la funzione nella paralisi bilaterale dell'adduttore delle corde

L'A. descrive in dettaglio una nuova operazione per il sollievo della dispnea da ostruzione in pazienti affetti da paralisi di ambedue le corde vocali.

La patologia del laringe che segue la paralisi dei nervi laringei ricorrenti è la stessa di ogni paralisi di qualsiasi nervo motore-paralisi flaccida, atrofia, fibrosi, contratture. Viene consigliata precoce elettiva tracheotomia.

Risultati favorevoli sono riportati in una serie di 28 pazienti operati con la nuova tecnica.

The Toxemias and the Thyroid Gland

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NEW YORK CITY

THE day of the specialist is still with us, and rightly so, for it is proper that the treatment of certain diseases and parts of the body be guided by those who have carefully studied them in minute detail. But—and in this lies the essence of the scientific approach—it must always be remembered that there is no such thing as kidney disease, or gallbladder disease or disease of the thyroid gland per se. There *is* disease. Those pathologic conditions that affect certain organs of the body, do not, as a rule, limit themselves to circumscribed spheres, except in the earliest stages. They ultimately affect the body as a whole. Indeed, the actual cause of the pathologic state may lie at a point far removed from the organ that evidences the abnormal condition.

Again and again in my experience I have removed lumps from the breast, not by any operation on the mammary gland, but by relieving certain conditions in the pelvic or abdominal cavity. Today psychiatrists are leaning more and more to the belief that I have been preaching for many years, that somatic factors are often the cause of mental illness, and that relief of pathology in the body may cure what was deemed to be a disease of the brain. Likewise, mental states or emotional imbalance may have a definite effect on the body as a whole.

It is, then, of the greatest importance, and cannot be too strongly stressed, that while specialists are necessary, it is indispensable that they think of their patients as a dynamic mechanism, each part absolutely essential, each relying on and affecting the other and integrating into a whole.

TOXIC GOITER AND ITS CAUSES

In my experience with pathologic conditions of the thyroid gland there have been innumerable instances in which pathology at a distant point has resulted in a toxic goiter. Intestinal toxemia has taken its toll of many a thyroid gland that could have been saved. It is of considerable interest to recall that back in 1779 Wilmer, a surgeon of Coventry, England, demonstrated the relationship between stasis of the intestine and goiter. He cited two cases of goiter which were cured by "certain measures." In one of the cases he prescribed "a medicine composed of millepedes, burnt sponge, and cinnabar of antimony." But without fail the patients were to be "purged at intervals with mercurial cathartic pills." With this treatment he averred that the bronchocele (goiter) was cured in forty days. Undoubtedly the "purge" was at the bottom of the cure.

Many causes have been suggested for disturbances of the thyroid gland—unsanitary surroundings, deficient nutrition, infectious diseases, heredity or psychic conditions and, more recently, systemic poisoning. While such sources of infection may be located in different parts of the body, the sinuses, teeth, tonsils, cervix uteri, prostate and seminal vessels, and particularly the intestinal tract, are the most frequent. Many authorities on the thyroid gland believe that pathological conditions of the gland are, in many instances, definitely traceable to the intestinal tract. I concur in this opinion.

For many years it has been my contention that a goiter which diminishes in size

with the disappearance of other symptoms, through surgical or therapeutic measures on the intestinal tract, or any other suspected source of infection, is undoubtedly due, largely if not entirely, to the absorption of that particular toxin. Since all glandular tissue, including the thyroid, is dependent upon its hematogenous environment for its proper reaction to the body as a whole, any poisoning over a period of time must of necessity show its ill effects. Toxic irritation in the blood affects the cells, causing a change in their environment; thus the activity of the gland may either be augmented or diminished, or the character of its secretion changed.

Hertoghe believed that the thyroid is the monitor of all the internal secretory glands and the first to react to poisoning or undue excitement. Fear and a disturbed emotional state may cause an immediate enlargement of the gland. I recall a young patient about twenty-two years old, rather highstrung, but otherwise perfectly normal, who went to Europe on a pleasure trip. While on the Riviera she was in an automobile collision. Although she did not sustain any physical injury, she became nervously disturbed and developed a spontaneous goiter, with exophthalmos and tachycardia. It took several years after she was brought home before the goiter reduced in size and the accompanying conditions cleared up. Another such case was that of a seaman in the first World War who fell overboard and nearly drowned. He developed such a large goiter, with marked general symptoms, that he had to be discharged from the naval service.

In 1914 I referred to enlargement of the thyroid gland resulting from toxic poisoning at other sites of the body as "systemic goiter." Often in these cases the thyroid is not enlarged, but the classical symptoms are present—hyperthyroidism or dysthyroidism, increased or perverted thyroid secretion. Of course, systemic goiter must be differentiated from simple goiter, for in the latter instance, no matter how enlarged the gland, there is an absence of thyreotoxic symptoms. It must be remembered also that the size of the thyroid gland is not of real importance; it is the activity that is the greater factor. I have seen cases of an abnormally small gland which oversecreted and caused marked symptoms. We must not permit the size of the thyroid gland to confuse us. At times it is almost a misnomer to use the term "goiter," for that suggests enlargement of the gland as a result of oversecretion, whereas in cretins, for instance, though the gland is abnormally small, there have been innumerable instances of tumors of the thyroid. There are cases of hypothyroidism with a gland sufficiently enlarged to cause pressure symptoms that complicate the picture.

Many years ago my teacher, Theodore Kocher of Berne, attended a meeting on the thyroid gland in London. The diminutive, modest man, who was introduced as the one who knew "more about the thyroid gland than any other living person," quietly said: "I do not know much about the thyroid gland or about the poisoning of the system through the hypersecretion of the gland, but I do know that a little man can have a great diarrhea and a big man may have marked constipation. Likewise a small thyroid gland can be a menace to the entire body and upset the whole glandular system."

Frequently, in cases of intestinal toxemia uncomplicated by other conditions, the thyroid gland wastes to such a degree that it is hardly perceptible to the finger. It is this reduction in the gland that results in many symptoms exhibited by patients with chronic intestinal toxemia. Poisons in the blood may cause irritation, followed by glandular hypersecretion, then hypertrophy, and finally by atrophy and limited function. As a gland, the thyroid needs the proper material in order to provide proper secretion, in quality and quantity, for its

normal demands as related to the entire body. Unless all sources of infection are eliminated as far as possible, therapy to the thyroid will be handicapped and largely ineffective.

THERAPY

There are mild types of thyroidism which become completely normal when all toxic foci are cleared up; i.e., the atrophic thyroid with small isthmus may augment its size and increase its function; or if hypertrophic, it may begin to function normally. Operation upon the alimentary tract for an acute or subacute abdominal condition has often cured a case of hyperthyroidism. However, there are certain cases where the atrophic condition of the thyroid is such that the relief of the toxic situation alone is not sufficient. Thyroid therapy must then be instituted and, in some cases, continued indefinitely. Of course, in many cases where a goiter is present and demands surgical interference, it is also necessary to remedy other conditions before the cure can be complete.

Marked thyroidism, with a large or small gland, often demands either ligation or some form of thyroidectomy. This is true when the system is thoroughly poisoned with thyroid toxins. In such cases a period of preparation for operation is essential, and an understanding of the drawbacks of a complicating focus of infection elsewhere in the body, or of intestinal toxemia, will be helpful to the surgeon as well as of great advantage to the patient. The prognosis in such cases depends to a large extent upon the duration of the toxic symptoms.

In women, during puberty, throughout gestation and during the climacteric, a state of hyperthyroidism, often without obvious goiter, may exist. If no marked demands are made upon the gland by the absorption of toxins from foci of infection in other parts of the body, the hyperthyroid condition usually clears up when the aforementioned periods pass. But if care is not exercised, the hyperthyroidism may be prolonged and the gland be permanently affected.

The writer wishes again to stress the fact that in systemic goiter one must be on the lookout for such conditions as adenoids, chronic tonsillitis, sinusitis, pyorrhea, dental abscesses or caries, cervical adenitis, otitis media, infections from chronic appendix or gallbladder, pyelitis, vaginitis, salpingitis, pelvic abscess, pelvic peritonitis, colitis, and other gastrointestinal pathology which may be a prime factor in the condition under consideration.

In conclusion, it must be emphasized that this paper deals with thyroid conditions due to somatic factors that must be corrected, with or without operation on the gland itself, before cure can be hoped for. In over 3,000 of my cases the essential treatment was ligation or thyroidectomy, or both. However, I have also had a large number of patients (see the following case histories) where the primary or aggravating cause of the thyroid pathology lay in toxic infection from other parts of the body.

CASE REPORTS

CASE 1.—T. M., female, 36 years, married, two children, consulted me June, 1917, complaining of hemorrhage from the bowels, blood-stained vomiting and fainting spells. Eleven years previously a gastroenterostomy had been performed, by another surgeon, for duodenal ulcer. I found the patient emaciated, her breasts small, her thyroid gland atrophic. Abdominal examination elicited distinct tenderness over the head of the colon in the appendix region. I advised operation, which I performed July 3, 1917. Massive adhesions bound the gallbladder and transverse colon; the omentum was adherent to the old abdominal scar; there was a broad ileopelvic band. The conditions were relieved, and the patient gradually improved under digestives and intestinal antiseptics. Breast tissue and thyroid gland slowly became more normal in size. The patient has been and is now in excellent health.

CASE 2.—C. W., a male, 47 years, married, one child, consulted me February, 1921, complaining of great difficulty in swallowing. Five weeks previously he had noticed a lump, the size of an orange, in the neck. There were also cardiac symptoms and marked tremor. I operated February 27, 1921, removing the right half of the thyroid gland with isthmus. Microscopic examination showed marked vascularity, mul-

tiple cysts containing colloid and calcareous degeneration of the blood vessels. There was no return of goiter or symptoms of hyperthyroidism.

Note: Where degeneration of a part of the gland irritates the remainder, causing hypersecretion, operation is absolutely indicated.

CASE 3.—A. S., female, 24 years, single, consulted me in June, 1916. She had a large goiter with pulsation in the neck and exophthalmos. She complained of soreness and pain over the region of the appendix. Roentgenograms of the colon showed bands and adhesions in the right iliac fossa. I operated June 10, 1916. There was a massive attachment binding the terminal ileum in the cavity of the false pelvis and attached with the head of the colon to the posterior wall. The appendix was subacutely inflamed and filled with fecal material. There was accentuation of the last kink of the pelvic colon. The appendix was removed and other conditions were corrected. Four months following the operation, the goiter had entirely disappeared, all other symptoms of hypersecretion had materially lessened and the abdominal condition was entirely relieved. Some years later the patient married and has continued in excellent health.

CASE 4.—R. M., female, 28 years, married, three children, consulted me in October, 1925, complaining of enlargement of the neck. Two physicians had advised removal of a goiter. The pulse was rapid, the eyes exophthalmic, the reflexes increased. Both tonsils were enlarged and full of pus; some teeth were suspicious; the uterus was retroverted and retroflexed; the ovaries prolapsed. Roentgenograms showed caries and apical infection of a number of the teeth. The condition was corrected. I removed badly diseased, pus-filled tonsils and some adenoids on October 14, 1925. On October 25, 1925, I removed a kinked appendix full of fecal matter and cysts of the left ovary; also performing curettage, anterior colporrhaphy and extensive perineorrhaphy, with suspension of the uterus. The patient improved rapidly, eyes and pulse returning to normal. At the present time, sixteen years after the operation, she is in excellent health, with no return of goiter or other trouble.

CASE 5.—R. A., female, 36 years, married, no children, consulted me March, 1916, complaining of attacks of bloating, nausea, vomiting, marked constipation and, at times, severe abdominal pain over a period of eight years. The attacks lasted from eight to ten hours and were from a few days to a month apart. There was marked enlargement of the neck, exophthalmos and considerable pulsation. On March 29, 1916, I operated and found a twisting of the ascending colon over to the other side just below the hepatic flexure, and across this a mass of adherent omentum; a marked ileopelvic band, cecum rotated at terminal ileum almost to a point of obstruction with the patient erect. All intestinal pathology was corrected. On examining the gallbladder, the operator felt stones but because of the extent of the operation did nothing in the right upper quadrant. Three weeks later gallstones were removed, the gallbladder drained, and some hemorrhoids removed. All abdominal and gastric symptoms disappeared. The goiter gradually reduced in size until it disappeared, and the eyes became normal. She was able to do her own housework. She is in excellent condition.

CASE 6.—S. G., male, 29 years, married, consulted me October, 1916, complaining of enlargement of the neck with shortness of breath, tremor, marked protrusion of the eyes and irritability. Two years previous he had had an attack of frontal and maxillary sinusitis, following which the enlarged neck was noticed; iodine treatment had no effect. I found that although the foci of infection in the sinuses had cleared, there had been a poisoning of the system by the thyroid toxins and operation was indicated. Thyroidectomy was performed on October 24, 1916. The eyes became perfectly normal and all symptoms of thyroid dysfunction disappeared. He was able to take out insurance policies aggregating $25,000 and at the present writing is in perfect health.

CASE 7.—N. M., female, 38 years, married, four children, consulted me in February, 1910, complaining of constipation, pain and distress in the abdomen and prolonged menstruation. She was excessively fat and flabby. Examination revealed a chronic appendix, intestinal adhesions, umbilical hernia, fat neck, but decidedly atrophic thyroid. I operated in March, 1910, (abdominal incision through 8 inches of adipose tissue) and removed a chronically inflamed appendix, many adhesions and an omental mass from two hernial sacs in the abdominal wall, each the size of a hen egg. Many kinks and angulations of the intestine were straightened. There was marked improvement. Tremor, shortness of breath and other organic symptoms disappeared. She was given thyroid medication at intervals from 1910 to 1919, when she discontinued its use. In January, 1912, the patient again consulted me for a lump in the right breast; this had slowly developed after she had hit her breast a year before. She was again suffering from autointoxication and hypothyroidism. She was given laxatives, intestinal antiseptics and thyroid substance and advised to wear a properly fitting brassiere. The mass in the breast, evidently caused by autointoxication, entirely disappeared, and the hypothyroidism improved over 75 per cent.

Note: In this case the static condition of the intestines had been present for so many years and the thyroid gland had become so atrophic that the relief of the underlying toxic situation had to be supplemented by thyroid medication.

CASE 8.—L. B., female, 25 years, single, consulted me in February, 1917, complaining of marked enlargement of the neck, nervousness and continued diarrhea. Examination revealed a large goiter, enlargement of the heart, enteroptosis and ileal tenderness. On March 28, 1917, because of much discomfort from pressure, I removed the right half of the thyroid gland and the isthmus. Abdominal symptoms continued, and on February 8, 1918, I plicated a markedly diverticulated cecum, removed a chronically inflamed appendix, anchored the cecum and ascending colon in normal position and relieved the ileopelvic bands. The patient had no recurrence of her abdominal trouble and there was no return of the goiter.

Note: This case of pronounced systemic goiter required operation both on the thyroid and in the abdomen to effect a cure.

SUMMARY

Certain conditions of the thyroid gland are due to foci of infection at distant points.

Toxic irritation in the blood affects the cells; thus the activity of the gland may either be augmented or diminished, or the character of its secretion changed.

One of the many causes of thyroid pathology is chronic intestinal toxemia. A goiter whose size diminishes and whose accompanying symptoms disappear after surgical or therapeutic measures on the intestinal tract (or other suspected source of infection) is undoubtedly caused by the absorption of that particular toxin.

Simple goiter must be differentiated from systemic goiter, for in the former, no matter how enlarged the gland, there may be very few, if any, thyrotoxic symptoms. It is the activity and not the size of the gland that must be taken into consideration.

Illustrative cases are cited in which the relief of the somatic factors, with or without operation on the thyroid gland itself, cured the condition.

RÉSUMÉ

Les toxihemies et la glande thyroïde

Certes conditions de la glande thyroïde sont dues à des foci d'infection dans des points éloignés. Irritation toxique dans les sang dommage les cellules, ainsi l'activité de la glande peut être augmentée ou bien diminuée ou le charactère de la secretion peut etre changé.

Une des plusieurs causes de pathologie thyroïdienne est la toxihemie chronique intestinale. Un goitre dont le volume decroît et dont les symptômes qui l'accompagnent disparaient après des traitements chirurgicales ou therapeutiques sur le canal intesinal ou des autres soupconnées sources d'infection est sans doute guéri par l'absorption de cette particulière toxine.

Le goitre simple doît être differentié du goitre systemique, parce que dans le premier, n'importe combien élargie la glande est, il peut y être très peux, ou aucun symptôme thyreotoxique. C'est l'activité et pas le volume de la glande que doit être prise en consideration.

Des cas explicatifs sont cités, dans les quels le soulagement des facteurs somatiques avec ou sans opération sur la glande thyroide même, guerit la condition.

ZUSAMMENFASSUNG

Toxaemie der Schilddrüse

Gewisse Erkrankungen der Schilddrüse, werden durch Infektionsherde an weitabegelegenen Stellen hervorgerufen. Toxische Reizung des Blutes wirkt sich auf die Zellen aus; auf diese Art kann die Funktion der Drüse hinauf oder herabgesetzt werden, oder es kann sich die Beschaffenheit ihrer Sekretion ändern.

Eine der vielen Etiologien einer pathologischen Schilddrüse ist eine chronische Toxaemie der Eingeweide. Ein Kropf welcher, nach chirurgischer oder therapeutischer Behandlung des Eingeweidetraktes oder anderer verdächtiger Infektionsquellen an Grösse abnimmt oder dessen begleitende Symptome verschwinden, wurde zweifellos durch die Absorption dieses bestimmten Toxins geheilt.

Einfacher Kropf muss von systemischen Kropf unterschieden werden, da bei ersterem, wie immer vergrössert die Drüse auch sein mag, sehr wenige oder auch gar keine thyreotoxischen Symptome vorhanden sein können. Es ist die Aktivität und nicht die Grösse der Drüse welche in Betracht gezogen werden muss.

Es werden erläuternde Fälle aufgezählt, bei welchen durch die Behebung des somatischen Faktor, mit oder ohne Operation der Schilddrüse selbst, der Zustand geheilt wurde.

SUMARIO

Las toxemias y la glándula tiroides

Ciertas condiciones de la glándula tiroides son debidas a focos de infección en puntos distantes. La irritación tóxica tiene efectos en las celulas, por esto la actividad

de la glándula puede aumentar o disminuir o los caracteres de su secreción cambiar.

Una de las muchas causas de la patología del tiroides es la toxemia crónica intestinal.

Un bocio que disminuye de tamaño y que los síntomas desaparecen despues de un tratamiento médico del tracto intestinal o quirúrgico de un foco de infección es sin duda debido a que se eliminó la absorción de toxinas.

El bocio simple puede ser diferenciado del bocio sistemático, porque en los antecedentes se presenta el crecimiento de la glándula sin ningún sintoma tirotóxico. Es la actividad y no el tamaño de la glándula lo que se tomará en consideración para diferenciarlos.

Son citados, casos ilustrativos en los cuales los factores somáticos mejoraron, con o sin operación de la glándula tiroides.

RIASSUNTO

Le tossiemie e la ghiandola tiroide

Alcune condizioni della ghiandola tiroide sono dovute a foci di infezione in punti distanti. Irritazione tossica nel sangue colpisce le cellule; così l'attività della ghiandola può essere aumentata o diminuita o il carattere della secrezione cambiato.

Una delle molte cause di patologia tiroidea è la tossiemia da disturbi intestinali cronici. Un gozzo, il cui volume diminuisce e i cui sintomi concomitanti spariscono dopo misure chirurgiche o terapeutiche sul canale intestinale o altre sospette sorgenti di infezione, è senza dubbio curato dall'assorbimento di quella particolare tossina.

Il gozzo semplice deve essere differenziato dal gozzo sistemico perchè nel primo, per quanto ingrandita sia la ghiandola, ci possono essere molto pochi o nessun sintomo tireotossico. È l'attività e non il volume della ghiandola che deve essere preso in considerazione.

Casi illustrativi sono citati nei quali la scomparsa del fattore somatico, con o senza operazione sulla ghiandola tiroide stessa, guarì il disturbo.

INTERNATIONAL ASSEMBLY

Associate Members, Members and Fellows desiring to present papers at the International Assembly of the International College of Surgeons to be held in Mexico City, Mexico, from August 10 to 14, 1941, will please communicate at once with Dr. Desiderio Román, 250 South 17th Street, Philadelphia, Pennsylvania, Chairman of the Program Committee for the United States.

Recurrent Hyperthyroidism

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WE will assume that hyperthyroidism is eventually a surgical disease, and that the surgeon is asked three specific questions by the patient. What is the risk of my operation? What are the chances of my goiter coming back? What is this operation going to cost?

The last question is almost entirely a social problem, but to quote Bowers,[1] it is a grave mistake to belittle or neglect the aspect of freedom from worry in the treatment of the toxic goiter patient. We have noticed that patients freed from financial worry, as by an insurance plan, undoubtedly do much better. The first question has been answered by many individuals and groups throughout this continent who have been operating upon thyroids with a risk of less than 1 per cent.

The second question is all-important to the patient. Are his symptoms coming back? Is he going to be able to work? He does not know what is meant by recurrent hyperthyroidism, but his whole physical and economic future is involved in this very pertinent query. The question is, therefore, a real problem for the clinician or surgeon, and it is with this in view that we shall discuss the possibilities of an accurate prognosis of the thyrotoxic case.

REMAINING TISSUE

Theoretically, nodular toxic goiters should not recur, provided all the adenomatous tissue has been removed. In reoperating upon our own cases and those done by other surgeons, we have found that some adenomatous tissue has been overlooked. One of the most interesting cases of this kind was a patient upon whom we had done a bilateral thyroidectomy for nodular toxic goiter. Both sides were substernal and degenerated. A radical operation was done. No fluoroscopic examination was made of the chest at the time. Within a year the patient returned to us with shortness of breath and symptoms of hyperthyroidism.

We thought it was impossible for us to have missed any gland, and in the clinical examination found her right chest dull. A roentgenogram showed the pleural cavity to contain fluid. When this was withdrawn, further plates showed the presence of a tumor of the mediastinum. The basal rate being still elevated, a diagnosis of aberrant thyroid was made. The chest was opened (E.C.J.) and a thyroid the size of a large grapefruit was removed. This had no apparent blood supply. Its removal, however, cleared up all the patient's symptoms.

One should always consider, in the return of hyperthyroid symptoms in nodular toxic goiter, the possible presence of these aberrant thyroids, which have in some way cut themselves off from the main gland. The error in this case could have been avoided by fluoroscopic examination of the chest.

In the last few years we have been doing practically total thyroidectomies in nodular toxic goiter, and have seen only an occasional return of symptoms. In considering this whole problem, one must keep in mind the return of symptoms of heart damage, and differentiate them from symptoms of true hyperthyroidism.

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REGIONAL FACTORS

We believe that recurrent hyperthyroidism is regional, and that its incidence has something to do with the severity of the disease. Thompson and Means (1932), in a comparison of Boston and Chicago, found no difference in these cities in the severity of the disease, as based upon the rate of reduction of metabolism under iodine. However, we believe, from personal communications and personal talks with members of the American Association for the Study of Goiter, that in the Niagara Peninsula we see a larger percentage of severe cases of diffuse toxic goiter than is seen in some of the other goitrous belts. Basal rates of +75 and over are not uncommon. We see preoperative crises every year. Postoperative recurrences in members of this group under our care amount to 15 per cent. This is a much higher recurrence rate than reported by many of our friends, whom we have had the opportunity of seeing operate, many of them doing a less radical operation than we attempt.

In some nongoitrous districts, such as New Orleans, severe hyperthyroidism with crises, especially in the Negro race, has been observed by Rives.[2] In a recent questionnaire relative to storms or crises, we find that there is a close relationship between the number of recurrences and the number of crises or storms seen since the advent of iodine therapy. Plummer (1931) believed that the severity of the disease in certain localities ran in cycles, and followed severe outbreaks of influenza.

OTHER FACTORS IN RECURRENCE

Seeking other factors bearing upon recurrences, we agree with Goetsch[3] that failure to remove adequate amounts of hyperplastic tissue and neglect to remove the pyramidal lobe may be the most common reasons for recurrence, but that this is not invariably true. Goetsch believes that some of these recurrences are based upon original cause or "urge." We believe this is another way of expressing what Warthin talked about in his "Graves' constitution."

We have suggested elsewhere[4] that there is a group of adolescents with diffuse toxic goiter showing certain characteristics which make them subject to storms during their surgical treatment and also liable to recurrence. In reviewing microscopic slides from recurrent cases, we have found only one during the last three years which did not show the large degree of lymphocytic infiltration referred to by Warthin. Diffuse toxic goiter cases which show no benefit from iodine, nor any palpable change in the feeling of the thyroid gland (sometimes called the iodine-resistant group), should be put down not only as decided operative risks, but also as potentially recurrent cases.

Means[5] warned us against being dogmatic in thyroid matters. He also suggested that it is impossible for the clinician to state preoperatively what is going to be found on the microscopic slide. Generally speaking, a diagnosis of nodular toxic goiter can usually be made, and the prognosis also, in so far as recurrence of hyperthyroid symptoms is concerned. This is true, provided a total thyroidectomy is planned. If, then, we get our recurrences in diffuse toxic goiter only, each individual must be judged separately. Graves' constitution, in our minds, is a real entity. Radical operations diminish the percentage of recurrences; nevertheless, if recognized, severe hyperthyroidism with high basal metabolic rates, particularly in the adolescent group, will enable us to caution the patient of the possibility of future trouble. If at the time of operation the sections show a large amount of lymphocytic infiltration, we believe that one must suggest the probability of recurrence.

THERAPY

The symptoms of recurrence run all the way from a mild degree of tachycardia and tremor to the fulminating type, in which

all symptoms are worse than before operation and the gland is larger. Cases of the latter type are cited by Crotti[6] and others. In the mild cases, small doses of iodine may keep the patient under control, and this may be necessary for the remainder of the patient's life. Secondary operations should be left until all other methods have been tried.

We make a practice of advising radiation of the thyroid gland as a preliminary measure, as this treatment seems to have a marked effect upon recurring types. This again may have something to do with a large amount of lymphoid tissue in the gland. We have also recently been using radiation therapy over the pituitary and over the suprarenal, as suggested by Hutton and Madden,[7] and according to their technic, viz.: 120 kv., 2 mm. aluminum filter, 50 cm. skin target distance, 3 ma., 5 min., delivering 50 r units. The pituitary is treated through a portal 10 by 10 cm. and the adrenals through a common portal 15 by 15 cm. Both glands are treated on the same day. In our limited experience this additional measure has had favorable results. We have deviated from the suggestion of Hutton and Madden by treating one gland at a time in order to ascertain which gland, if any, plays the greater part in the apparent result. We have come to no conclusion.

Iodine, of course, is used in all recurrent cases in small doses, and we agree with Jackson that many of the mild hyperthyroid cases or recurrences can be kept under control by this measure over a period of years. The brilliant efforts of Crile in attacking persistent hyperthyroidism through the sympathetic ganglia are worthy of the greatest consideration. The reason why many others have not been able to concur in his conclusions is in a measure due to the technical difficulties of the operation.

SUMMARY

Theoretically, nodular toxic goiters should not recur following operation, provided that practically total thyroidectomies were done. Nevertheless, at least 25 per cent of the author's cases of diffuse toxic hyperthyroidism have shown some signs of recurrence. The greater the urge from without the thyroid, the more chance there is of a recurrence; in other words, polyglandular types recur in spite of complete operation. The author believes that recurrent hyperthyroidism is regional, as is the severity of the disease.

Recurrences are treated by iodine, which may be necessary for the remainder of the patient's life. Secondary operations should be left until all other methods have been tried. Radiation of the thyroid gland is always used as a preliminary measure, and radiation of the suprarenals and pituitary has been recently used with satisfactory results.

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RÉSUMÉ

Hyperthyroïdisme recurrent

Theoreticamment les goitres nodulaires toxiques ne devraient pas rétourner après l'opération pourvu que thyreodectomies praticamment totales soient faites. Cependant au moins 25% des cas de hyperthyroïdisme toxique diffus de l'auteur démontrèrent quelques signes de rétour. Autant plus grand le stimulus du dehors de la thyroïde, autant plus grande est la possibilité de rétour; en d'autres mots les types pluriglandulaires rétournent malgré les opérations completes. L'auteur croit que l'hyperthyroïdisme récidivant est régional comme est la sévérité de la maladie.

Les récidives sont traités avec le iode, qui peut être necessaire pour tout le reste

de la vie du malade. Opérations sécondaires devraient être laissées jusqu'à que d'autres méthodes n'aient pas étés prouvés. Irradiations de la thyroïde sont toujours employées comme un moyen préliminaire et irradiations des surrénales et de la pituitaire ont étées récemment employées avec de résultats satisfaisants.

ZUSAMMENFASSUNG

Rezidivierender Hyperthyreoidismus

Theoretisch sollte knotiger, toxischer Kropf, nach einer Operation nicht rückfällig werden, vorausgesetzt dass eine nahezu totale Thyreoidectomie vorgenommen wurde. Nichtsdestoweniger haben mindestens 25 Fälle des Autors, von diffusen toxischen Hyperthyreoidismus, Rezidive irgendwelcher Art gezeigt. Je grösser der Drang von ausserhalb der Schilddrüse, desto grösser ist die Möglichkeit eines Rezidiv; in anderen Worten, es werden die polyglandulären Typen, trotz radikaler Operation rückfällig. Der Autor ist der Ansicht, dass rezidivierender Kropf, ebenso wie die Schwere der Erkrankung, von der Gegend in welcher der Patient lebt, abhängig ist.

Rezidive werden mit Jod behandelt, welches zeitlebens für den Patienten nötig sein kann. Sekundäre Operationen sollen nur vorgenommen werden, nachdem alle anderen Methoden versucht worden sind. Bestrahlung der Schilddrüse wird immer als erste Massnahme vorgenommen und kürzlich wurden auch Bestrahlungen von Nebenniere und Pituitaria mit gutem Erfolge durchgeführt.

SUMARIO

El hipertiroidismo recurrente

En un teórico análisis del bocio nodular tóxico, éste no repetirá despues de la extirpación de la totalidad de la glándula tiroides. Sin embargo, el 25 por ciento de los casos que el autor reporta de hipertiroidismo tóxico difuso han presentado algunos signos. Los tipos poliglandulares repiten a pesar de una completa operación. El autor cree que esto es debido a la severidad de la enfermedad.

Las recurrencias serán tratadas con yodo y se usará todo el tiempo que el paciente lo requiera. Operaciones secundarias serán utilizadas despues de haber intentado otros métodos. La radiación de la glándula tiroides es seimpre usada como una preliminar mediada. La radiación de las suprarenales y de la pituitaria ha sido utilizada recientemente con resultados satisfactorios.

RIASSUNTO

Ipertiroidismo ricorrente

Teoreticamente gozzi tossici nodulari non dovrebbero ritornare dopo l'operazione purchè siano fatte tireodectomie praticamente totali. Ciò nonostante almeno 25% dei casi di ipertiroidismo tossico diffuso dell'A. dimostrarono alcuni segni di recidiva. Tanto maggiore lo stimolo dal di fuori della tiroide, tanto maggiore è la possibilita di recidiva; in altre parole i tipi pluriglandolari recidivano a dispetto di operazioni complete. L'A. crede che l'ipertiroidismo recidivante è regionale, come è la severità della malattia.

Le recidive sono trattate con iodio, che può essere necessario per tutto il resto della vita del paziente. Operazioni secondarie dovrebbero essere lasciate fino a che altri metodi non sono stati provati.

Irradiazioni della tiroide sono sempre usate come un mezzo preliminare, e irradiazioni delle surrenali e dell'ipofisi sono state usate recentemente con risultati soddisfacenti.

The Problem of Thyroidectomy Drainage

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THE question of whether or not to employ drainage after thyroidectomy will cause much debate in almost any surgical meeting. In the past all thyroidectomies were drained; but with the advent of improved technic and nonabsorbable suture material, the question has entered the controversial field. Theodore Kocher,[1] the father of goiter surgery, drained all wounds. Therefore, practically all early American surgeons did likewise, except Halsted and his pupils. The drainage of the thyroid wound was almost a necessity in the past, because heavy catgut was used to secure hemostasis. This catgut caused an extensive exudative response, resulting in a large amount of serum which made drainage obligatory.

The first American surgeon to drain through the wound was C. H. Mayo.[2] Some surgeons, notably Coller and Boyden,[3] drain from the ends of the incision. These wounds drained about fifteen days, making it necessary for the patient to stay in the hospital some sixteen or more days.

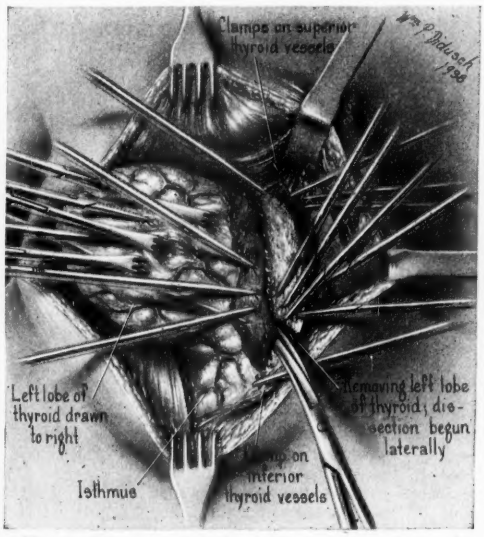
Clamps on superior thyroid vessels
Left lobe of thyroid drawn to right
Isthmus
Removing left lobe of thyroid; dissection begun laterally
Clamp on inferior thyroid vessels

Fig. 1. Dissection of the lobe to show proper size of the thyroid remnant that is to be left *in situ*.

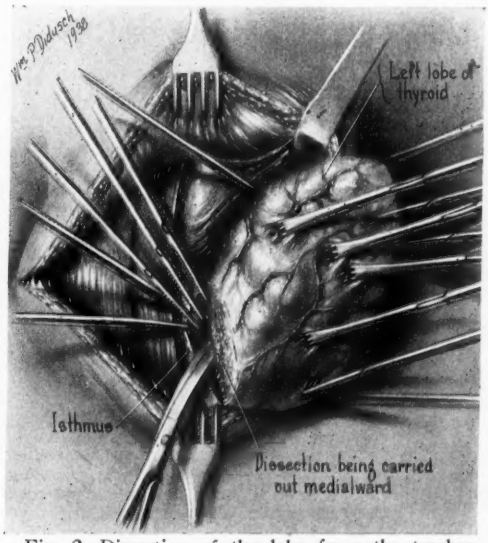

Fig. 2. Dissection of the lobe from the trachea, showing remnant of the gland left along the trachea.

SUTURE MATERIALS

The trend toward nondrainage probably started with Halsted,[4] who used fine silk suture material and the transfixion method for the absolute control of hemorrhage. Since Halsted, Whipple[5] has become one of the chief proponents of silk for clean cases. He has listed the errors to be avoided

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in the use of silk (the same being true for cotton). These errors are:

1. Tight sutures.
2. Mass ligatures.
3. Blunt scissor dissection.
4. Careless hemostasis.

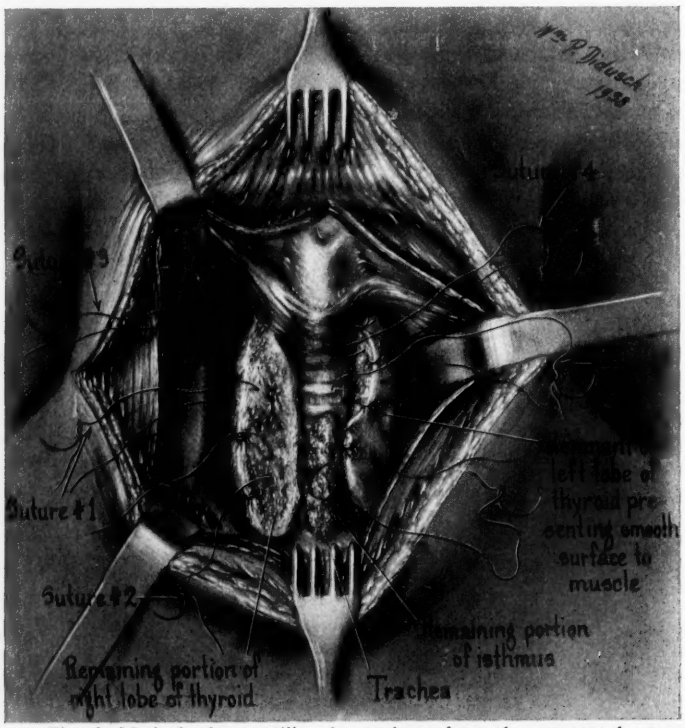

Fig. 3. Method of controlling hemorrhage from the remnant by two rows of interrupted fine silk sutures placed at different levels in the long axis of the neck. Interrupted sutures are placed through the edges of the remnant and the fascia and thyroid tissue of the trachea, inverting the outer surface of the remnant to conceal its incised surface.

5. Use of any but the finest grade of silk.
6. Combination of silk and catgut.
7. Use of silk in any but a sterile field.
8. Continuous sutures.

In 1940 Meade and Ochsner[6] reported on the relative value of catgut, silk, linen and cotton as suture materials. They did their experimental work on the tissues of the abdominal wall of rabbits. The tissue reaction was observed on the fifth, eighth, tenth and thirteenth days after these sutures were imbedded. The materials were graded according to the amount and persistence of leukocytic infiltration, the appearance of fibroblasts, amount of serum and fibrin and the length of time necessary to produce final healing. On this basis cotton, which produced the least reaction and earliest healing, was graded 1, silk 2, linen 3 and catgut 4. Cotton shows much less tendency to tissue ingrowth and is therefore less likely to cause sinuses in the presence of infection.

TECHNIC

A few of the high points in the technic of subtotal thyroidectomy which aid in the securing of hemostasis will be mentioned.

The preparation of the remnant, as shown in Figures 1 and 2, is done routinely in the Robert Packer Hospital. This is followed by an outstanding improvement in technic originated by Lahey.[7] He ligates all the vessels in the remnant and then rotates the remnant toward the trachea to which it is sutured. This buttresses the cut and oozing surface of the gland against the trachea and controls all oozing and bleeding (see Fig. 3). With the employment of this technic he has been able to close most of his subtotal thyroidectomies for exophthalmic goiter without drainage. He also stated that it has been definitely established in his clinic that postoperative reaction storms are not related to drainage or nondrainage after subtotal thyroidectomy, provided the wound is left dry. The method of suturing the sternothyroid muscle to the lower margin of the remnant, and in turn together, is an additional aid in securing complete hemostasis (see Fig. 4).

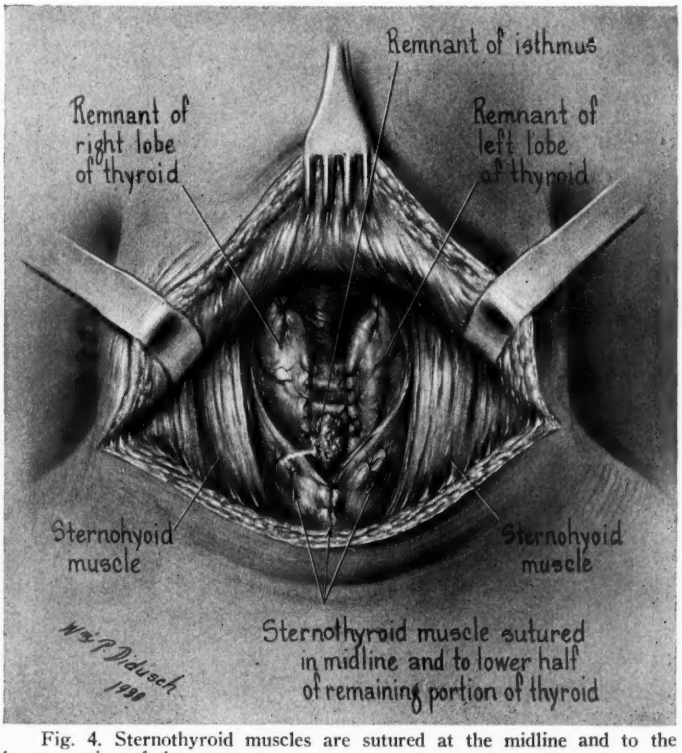
Remnant of isthmus
Remnant of right lobe of thyroid
Remnant of left lobe of thyroid
Sternohyoid muscle
Sternohyoid muscle
Sternothyroid muscle sutured in midline and to lower half of remaining portion of thyroid
W. P. Didusch 1938

Fig. 4. Sternothyroid muscles are sutured at the midline and to the lower portion of the remnant.

DeCourcy,[8] in 1932, found it necessary to drain only 12 in a series of 1,200 cases, or 1 per cent. Guthrie and Sharer,[9] in 1935, reported that they were able to close 62 per cent of their wounds without drainage by using a technic modified by the use of fine silk and very fine catgut as a running lock suture of the remnant to control oozing. Guthrie and Brown,[10] in 1938, stated that they were able to dispense almost entirely with drainage by using very fine silk or cotton and by adopting Lahey's suggestion of suturing the remnant to the trachea.

Many surgeons fear mediastinitis following the removal of substernal or intratho-

racic goiters if they do not drain these cavities. Few men pack them with gauze. The senior author[11] has not employed drainage in any of these cases and has seen no untoward effect from following such a plan.

When drainage is not employed, serum pockets may occur. If they are large, one small puncture may be all that is necessary to drain them. It is astounding to see how many of these pockets will be absorbed.

The fact that the drain is an excellent pathway for infection cannot be overlooked, although this is almost negligible when aseptic precautions are used and the drain is removed early.

In the last 356 cases treated at the Robert Packer Hospital, drainage has had to be employed only seven times, an incidence of 1.9 per cent. Cotton is used exclusively for the suture material; the remnant is sutured according to the suggestion of Lahey and the skin closed with clips.

An added precaution to prevent flap oozing and obliterate dead spaces is the application of a notched rubber sponge over the wound. This in turn is covered with a gauze pad and the entire dressing held in place by a wide gauze bandage. We employ this method in all cases; the technic is illustrated in Figure 5. It has thus been possible to reduce the postoperative stay from sixteen or more days to approximately ten days.

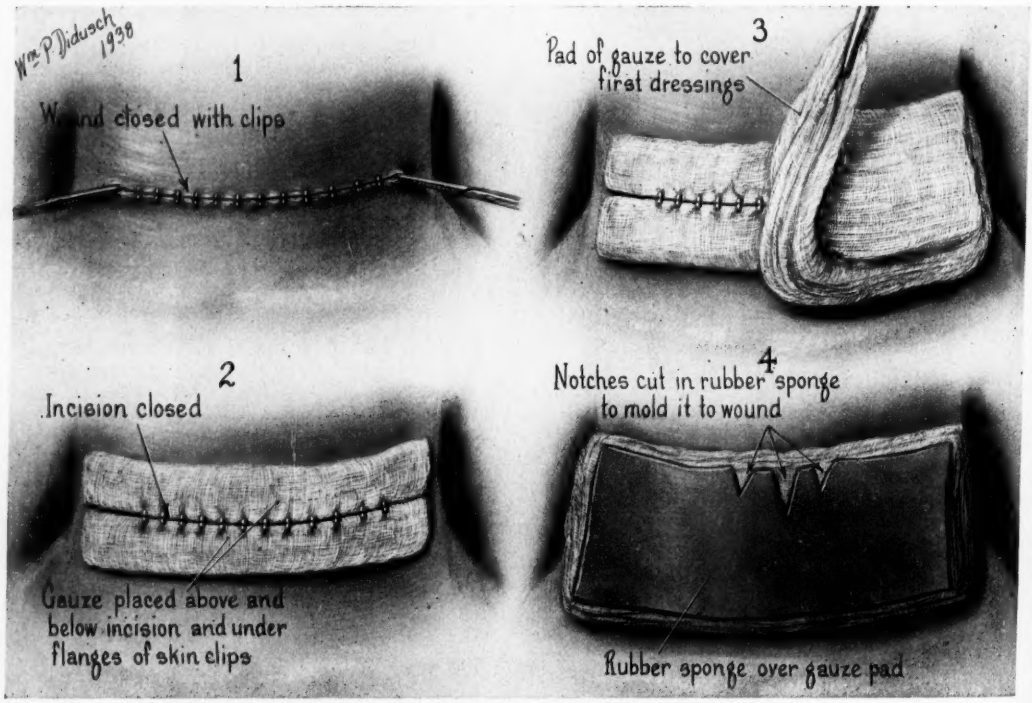
Wm. P. Didusch 1938
1
Wound closed with clips
2
Incision closed
Gauze placed above and below incision and under flanges of skin clips
3
Pad of gauze to cover first dressings
4
Notches cut in rubber sponge to mold it to wound
Rubber sponge over gauze pad

Fig. 5. Method of dressing the wound.

SUMMARY

Drainage need not be employed in thyroid surgery if careful hemostasis is secured with the aid of nonabsorbable suture material, following the principles laid down by Halsted, providing the remnant is sutured

correctly and the proper bandage applied. The period of hospital stay has been materially shortened by this technic.

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(NOTE: The cuts for Figures 1 and 2 were furnished through the courtesy of *Surgery, Gynecology & Obstetrics*, those for Figures 3, 4 and 5 through the courtesy of the *Frank H. Lahey Birthday Volume.*)

RÉSUMÉ

Le problème du drainage dans la thyroïdectomie

Drainage ne doit pas être necessairement employé dans la chirurgie thyroïdienne si une attentive hemostase est assurée avec l'aide de non adsorbable matière à suture, suivant les principles dictés par Halsted, pourvu que le rest est suturé justement et un convenable bandage appliqué. La periode de séjour dans l'hôpital a été beaucoup raccourci.

ZUSAMMENFASSUNG

Das Problem der Drainage bei Thyreoidectomie

Drainage ist in der Chirurgie der Schilddrüse nicht nötig, wenn sorgfältige Blutstillung mit Hilfe von nichtabsorbierbarem Nahtmaterial gesichert wurde, nach den Prinzipien von Halsted, vorausgesetzt dass der Rest der Drüse richtig genäht und der richtige Verband angelegt wurde. Die Zeit des Spitalsaufenthaltes wurde durch diese Technik bedeutend verkürzt.

SUMARIO

El problema del drenaje en la tiroidectomía

En la cirugia del tiroides no será necesario emplear la canalización si se hace una cuidadosa hemostasis con material de sutura no absorbible, siguiendo los principios anotados por Halsted, asegurar que el colgajo esté suturado y aplicar un bendaje apropiado. Siguiendo esta técnica el periodo de hospitalización ha sido acortado notablemente.

RIASSUNTO

Il problema del drenaggio nella tiroidectomia

Drenaggio non è assolutamente necessario nella chirurgia sulla tiroide, se si ottiene una accurata emostasi per mezzo di materiale da sutura non assorbibile, seguendo i principi tracciati da Halsted, purchè il residuo sia suturato correttamente e appropriata fasciatura sia applicata. Il periodo di soggiorno in ospedale è stato materialmente scorciato con questa tecnica.

INTERNATIONAL COLLEGE OF SURGEONS
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For information about membership in the International College of Surgeons, address Mr. Ralph E. Osborne, Business Secretary, The Drake, 1512 Spruce Street, Philadelphia, Pennsylvania.

The Nodular Goiter: Its Inherent Dangers

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FOR many years we have been dividing nodular (adenomatous) goiters into two groups, namely, toxic and nontoxic; or, in the older terminology, adenomatous goiter with, and without, hyperthyroidism. As a result many patients with definite nodules in the thyroid gland were too often advised to do nothing about them, providing the basal metabolic rate was within normal limits. That we have erred in arriving at such a conclusion, and in giving such advice, is shown in the observations of surgeons who have taken the trouble to note the effects of removal of nontoxic nodular goiters.

These goiters were formerly presumed to be without bad effects (nontoxic) because the basal metabolic rate was between minus 15 per cent and plus 15 per cent. Recent studies, however, tend to show that in these glands there is great likelihood that a change does take place in the previously normal colloid, and that with cystic degeneration a deleterious substance is elaborated which has a slow, yet certain, detrimental influence on the patient's general health.

CASE REPORTS

My interest in this problem was stimulated by an experience of ten years ago. A woman, 55 years old, came to me with a large nodular goiter which, in addition to cystic masses, contained several hard areas. She looked to be about 65 years of age (this ten-year addition is quite consistent in these cases) and had noticed a goiter since she was about 30 years old. She was now unable to do any of her housework. Until the time I saw her, she had been able to go to Florida each winter, but felt unable to make the trip that year. She was fat, her pulse rate was 90, with evidence of slight decompensation, as shown by intermittent swelling of her legs; her basal metabolic rate was minus 15.

The whole picture was one of hypothyroidism, and for that reason her physician argued strongly against thyroidectomy. The argument that something must be absorbed into the body from so manifestly a degenerated gland finally won him over, and a thyroidectomy was performed.

The gland contained many areas of cystic degeneration, showing old hemorrhages, fatty degeneration and scar tissue formation, along with plaques of calcification. Grossly, little normal-appearing thyroid tissue could be seen. Microscopically, however, flattened acini with low cuboidal epithelium could be found, pressed between the degenerated masses. This picture gave us the hope that freedom from pressure might allow the remaining tissue to function more normally.

The outcome proved our surmise to be correct, inasmuch as the patient was able to resume her household duties and to travel without discomfort. Within six months her basal metabolic rate had risen to zero, evidence of a normally functioning remnant.

McGregor[1] has pointed to several examples of premature aging associated with thyroid dysfunction. He cites as a typical case a young woman 30 years of age who worked in his clinic. She had a palpable thyroid nodule and was advised to leave it alone until it bothered her. A year later the change in her appearance was remarkable. She looked at least 45, the adenoma had become cystic, she felt let down, her hair had become prematurely gray, her skin rough, wrinkled and without life and she complained of inward nervousness. Her basal rate was normal and she had *no* symptoms of hyperthyroidism.

A solitary cyst was enucleated from the thyroid gland. There were no nodules palpable in the remaining gland. Within six months she had regained her appearance of the year before, though she still had gray hair. Her condition was checked for several years, and though her gray hair of course remained, she showed no more signs of body decay, nor did she have any signs of recurrence.

SYMPTOMATOLOGY

Here we have two examples, one with a normal rate and one with a rate which is certainly at the lowest level of normal. One was a fetal type of adenoma, the other the colloid type. In one the degeneration was recent; in the other long-standing. They both show what can happen—one quickly, the other over a period of years—when nodular goiter is present without classical signs of hyperthyroidism, only *some sort of dysfunction.*

These patients, then, begin to age at a rate greater than normal when we consider the evident absence of any concurrent disease. If we think of the nodular goiter as a gland with *dysfunction*, even though it is "nontoxic" in the sense that there is no increased metabolic rate, we will have a better understanding of the argument for surgical intervention in these cases.

Hertzler[2] and his co-workers have succeeded in showing a difference between the staining properties of normal colloid and that found in nodular goiters. They contend that a change has taken place in the colloid. This difference in staining properties was particularly noted in glands which showed extensive degeneration of adenomas, often of the fetal type, yet were quite definitely nonfunctioning, certainly not hyperactive. Hertzler feels, therefore, that some change takes place in the chemical composition of the colloid, that it takes place early in the life history of the nodular goiter and becomes more evident as the age of the goiter increases.

Whatever the substance is which is thus elaborated, it is not outside the realm of possibility that it is the causative factor of the symptoms found in patients with nontoxic nodular goiters. These individuals show a high incidence (estimated at about 85 per cent) of heart palpitation, dyspnea and irritability. Basal metabolic rates range from plus 15 to minus 20. Add to these factors, fatigation, maintenance of or increase in weight, and such signs of aging as dryness of the skin and brittleness of the nails, and we have a mixture of symptoms which is certainly remote from the usual picture of toxic goiter as we see it when hyperplasia is present.

ARGUMENTS FOR SURGERY

Following these cases, we find that, almost without exception, the entire train of symptoms disappears following thyroidectomy, most important of all, perhaps, the heart consciousness which is always most disturbing to the patient.

I have, therefore, no hesitancy in saying that nodular goiters, once the diagnosis is evident, should be removed. A single adenoma, practically always of the fetal type, should be enucleated, making sure that no others of smaller size can be palpated at the time of operation, in which event further surgery would be indicated.

A study of fifty thyroid-heart cases by Chesky[3] gives us valuable data on which we can pin the argument for surgical treatment. He states:

"Thirty-five nodular colloid goiters were chosen. They were known to be present by the patients for from 15 to 40 years. Fifteen studied were large, long-standing, solitary fetal adenomas seen in patients ranging from 50 to 75 years of age.

"Six of the nodular colloid goiters were practically symptomless, the patients complaining only of their goiters. Twenty-four complained mainly of symptoms referable to the heart. Of these, eighteen complained of palpitation, especially on exertion, easy fatigue, and shortness of breath on exertion. The other usual signs of thyroid toxemia, with the exception of slight nervousness, were absent. The basal metabolic rate ranged from plus 15 to minus 20. The remaining six of these twenty-four had the rapid and irregular hearts with the marked pulse deficit of auricular fibrillation, two showing definite signs of congestive heart failure.

"Gross examination of these thirty showed on cut sections the typical nodular formation of these goiters. Many of them showed degenerative areas even to the extent of cyst formation.

"Microscopic section showed many large colloid-filled alveoli made up of flat, almost pavement-like epithelium. In some areas new acini were forming in the walls of the old acini or in the spaces between the alveoli, but their epithelium was of the old

cuboidal type not associated with hyperfunction. Some sections showed extensive destruction and replacement fibrosis. In no place did they show definite epithelial hyperplasia of the type associated with hyperthyroidism.

"The remaining five of the patients with colloid goiter gave histories of mild cardiac symptoms for years and then developed rather suddenly the symptoms of marked hyperthyroidism, the heart becoming rapid and irregular, and three showing evidence of congestive heart failure. These glands microscopically were somewhat similar to the preceding, except that they showed areas of definite hyperplasia with high columnar cells, some with papillary projections of epithelium into the acini of the glands. It seems rather reasonable to deduct that these glands were producing cardiac symptoms for years and the hyperplasia was of more recent development, producing the more recent marked toxic symptoms and precipitating the congestive heart failure.

"All thirty-five of these glands showed areas of abnormal staining reaction of the colloid as shown by Hertzler.

"The other fifteen were the fetal adenomas. Granting that the fetal adenoma is really a benign tumor of the thyroid and not a goiter, it does undergo hyperplasia, forms colloid areas and is subject to degenerative changes. It also produces symptoms of toxicity. They were chosen because of their late tendency to produce cardiac symptoms. They frequently are present for years, showing evidence of mild toxemia; and then in later life the symptom of cardiac irregularity develops. They were chosen also because the diseased tissue is definitely localized, the remainder of the gland often being normal; the diseased tissue can with certainty all be removed, and we may feel reasonably sure that the results obtained are due to such removal.

"All of the patients with fetal adenomas complained of cardiac symptoms. Six gave a definite history of early nervousness and rapid heart, with little or no weight loss. The remaining nine did not mention nervousness in the entrance complaint. All complained of dyspnea and ease of fatigue and most of them were aware of their cardiac irregularity. Three ran regular pulse rates of about 100. Four had extra systoles and eight had auricular fibrillation. On section all of these adenomas were found to be long past their period of active growth. All showed degenerative changes. In some the acini had completely disappeared in the center, being replaced by fibrous tissue. In others the acini were atrophic and fragmented, lying in a poorly staining material. As is usual in fetal adenomas, the least degeneration was shown around the periphery of the gland, but these epithelial cells here were of the low type, showing regressive rather than hyperfunctioning activity.

"It certainly seems reasonable to assume in this group of fetal adenomas that a degenerative process is responsible for the cardiac symptoms, especially so when the complete removal of the diseased tissue produces such remarkable improvement in the cardiac condition.

"From the foregoing study it seems reasonable to conclude that something besides hyperplasia and hypersecretion produces symptoms in goiter patients. It shows that they may have marked cardiac symptoms and yet the gland at removal may only show degeneration.

"The colloid in these glands showed the changes in the staining reaction of the colloid as described by Hertzler. This study shows that in the cases selected *some slow process has been affecting the heart over a period of years.*

"There is nothing yet definitely proved as to the role of degeneration in the production of the so-called goiter heart, but there is enough evidence to warrant further study of degenerative changes in the gland,

and perhaps the chemical changes in the colloid will be the answer."

MALIGNANCY

If anything needs to be added to the argument for surgical intervention, the incidence of malignancy might be cited. It varies from 1 to 3 per cent in different parts of the world. No one who has once had the care of a patient with advanced carcinoma of the thyroid can help being impressed with the importance of avoiding such a contingency.

One type of thyroid malignancy which offers a chance for cure, or long freedom from recurrence, should be mentioned: the papillary adenocarcinoma. The nodule in the gland itself may still be so small that it cannot be palpated, yet a nodule appears in the neck and resembles a swollen gland. This "gland," when removed, shows under the microscope a picture which some have called "aberrant malignant thyroid," yet the same picture is found when a nodule in the lobe on the same side is examined. In these cases a complete lobectomy, including the closely surrounding structures and the isthmus, gives hope of long abatement, if not cure, of the condition.

As a final argument for surgical intervention, we might add that a fairly large number of nodular goiters become intrathoracic. These are the bane of the surgeon, and add considerably to the surgical risk. André Crotti once said that a man who looked for thrills in surgery should limit his work to the removal of intrathoracic goiters.

After the age of forty approximately 50 per cent of nodular goiters become toxic. That is, areas of hyperplasia occur, just as they do in the diffuse toxic goiter (exophthalmic goiter), whereupon we see the typical train of signs and symptoms—even though they be more moderate in degree. This, added to the already long-existent effect of a dysfunctioning gland, gives us the difficult case and the occasional death. As estimated by Pemberton, 81 per cent of the deaths from thyroidectomy occur in the advanced age group, with nodular goiter of long-standing.

IODINE ADMINISTRATION

The preparation of these patients for surgery should always be a joint problem for the physician and the surgeon. The surgeon should enter the picture as soon as operation has been decided upon, for it is he who must finally assume the risk. The physician should be able to assume responsibility for the condition of the cardiovascular system and other essentials.

Iodine should never be given until the patient has definitely consented to thyroidectomy. Some of the surgeon's most difficult problems are due to long-continued administration of iodine. It seems unfortunate that this should still have to be brought to the attention of the profession after many years of written and oral advice against the administration of iodine except as a preparation for surgery. No patient ever responds to its use so well as he does the first time. The economic factor involved in prolonged hospitalization should of itself be a deterrent. Certainly no importuning on the part of the patient should be allowed to warp the judgment of a physician.

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SUMMARY

The so-called "nontoxic" nodular goiter is shown to be accompanied by changes in the colloid which have a slow, yet certain, deleterious effect upon the patient. The normal basal metabolic rate is practically to be ignored as an indication of the patient's condition.

The condition is definitely a surgical one. The symptoms disappear, most important

of all, the thyroid heart. Danger of malignancy and intrathoracic goiter enforces the argument for surgical intervention. The use of iodine, except in preparation for surgery, is strongly condemned.

RÉSUMÉ

Le goitre nodulaire: inherents dangers

Le goitre nodulaire appellé "non toxique" se démontre être accompagné par des modifications du colloïde qui ont un lent mais certainement délétère effêt sur le malade. La valeur du metabolisme basale peut pratiquement être ignorée comme indication des conditions du malade.

La maladie est sûrement une maladie chirurgicale. Les symptômes disparaissent, plus important des tous, le coeur thyroïdien. Le danger de trasformation maline et de goitre intrathoracic renforcent l'argument pour l'intervention chirurgicale. L'usage du iode, excepté en preparation pour la chirurgie, est à condemner fortement.

ZUSAMMENFASSUNG

Der knotige Kropf: seine innewohnenden Gefahren

Der sogenannte "nicht toxische" Kropf zeigt begleitende Veränderungen im Kolloid, welche eine langsame aber sichere schädliche Wirkung auf den Patienten haben. Die normalen Grundumsatzwerte können, als Hinweis auf den Zustand des Patienten, fast ausser Acht gelassen werden.

Der Zustand ist sicherlich ein chirurgischer. Es verschwinden die Symptome und was das wichtigsteist, auch das Schilddrüsenherz. Die Gefahr der Bösartigkeit und des substernalen Kropfes bekräftigen den Standpunkt eines chirurgischen Eingriffes. Die Anwendung von Jod wird, ausser als Vorbereitung zur Operation, strengstens abgelehnt.

SUMARIO

El bocio nodular y su peligro inherente

El llamado bocio nodular no tóxico está acompañado de cambios coloidales, que traen efectos perjudiciales a los pacientes. El metabolismo basal normal practicamente no indica las condiciones de un enfermo.

En esta condición es necesario practicar la operación, los síntomas desaparecerán sobre todo el mas importante, el corazon tiroideo. El peligro, la malignidad y el bocio intratorácico apoyan el criterio de la intervensión quirúrgica. El uso del yodo, excepto para preparar a una intervensión quirúrgica, está contra indicado.

RIASSUNTO

Il gozzo nodulare: pericoli inerenti

Il cosí detto gozzo nodulare "non tossico" si dimostra essere accompagnato da modificazioni nel colloide che hanno un lento ma certamente deleterio effetto sul paziente. Il valore del metabolismo basale puó praticamente essere ignorato come indicazione delle condizioni del paziente. Il disturbo è senz'altro un disturbo chirurgico. I sintomi spariscono, più importante di tutti, il cuore tiroideo. Pericolo di trasformazione maligna e di gozzo intratoracico rafforzano l'argomento per l'intervento chirurgico. L'uso dello iodio eccetto che in preparazione per chirurgia è da condannarsi fortemente.

High Altitudes, Alkaline Reserve and Surgery

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A STUDY of the respiratory conditions among inhabitants of highland regions presents interesting aspects: (1) the partial diminution of oxygen and (2) the lowering of the CO_2 tension in the alveolar air, with ensuing repercussions on the acid-base balance.

PREVIOUS RESEARCH

The question of oxygen concentration has already been dealt with in Mexico by Vergara-Lope, Herrera, Ocaranza and Izquierdo, who explained the adaptation to high altitudes on the basis of polycythemia.

I started in 1923 a study relating to the second aspect of the problem: the role played by the CO_2 tension in respiratory conditions in the Mexican highlands, investigating the alkaline reserve by the gasometric method of Van Slyke and Cullen (the CO_2 combining power of the blood).[3] The data I collected up to 1925 were used as the basis of a thesis presented by Maximiliano Aguilar[4] to the Faculty of Medicine of the University of Mexico.

In 1931 Perrin[10] published his results, obtained by the Marriot method (CO_2 tension in alveolar air), confirming the results I had obtained up to that time. In the same year, Miranda[9] studied the conditions of respiration, with relation to the circulatory disturbances among inhabitants of the Valley of Mexico, organized and compared his data with ours, demonstrating the close relationship between the two. In 1933 Aguilar-Alvarez[2] presented before the Academy of Surgery the normal values found by the writer, without a knowledge of which the values found in his own cases would have been considered abnormal.

In the same year (1933) I presented to the Academy of Surgery my findings on the alkaline reserve among inhabitants of Mexico City, establishing normal values for the reserve in the Mexican highlands; these values were much lower than those found at sea level.[4] In 1934 I insisted on the importance of these values in relation to surgery at a meeting of the Academy of Science.[5] Later, in 1935, I presented my findings on the physiology of laborers working in the highlands to the Seventh International Congress of Industrial Accidents and Diseases, meeting in Beliguim.[6, 7, 8] I received comments on these findings from Castillo-Nájera, Thorek, Jellinek, Zollinger, Arnold, Stassen, Wegelin, Yersin, Majocchi, Policard, Rivet, Matas, Alessandri, Cuneo, Fontaine, Lippens, Lapenta, Bohler, Babcock, Hauser and others.

No one denies the importance of a knowledge of the normal values of alkaline reserve in the proper interpretation of conditions of respiration in high altitudes. The problem is of great interest to the physiologist, who studies it *per se*, and to the clinician on account of the part it plays in the study of the various syndromes; respiratory, cardiac, renal, etc. For the surgeon the knowledge of these normal values is essential, considering the many surgical problems which affect the alkaline reserve and thereby upset the acid-base balance of the blood (to cite a few: anesthesia, especially general anesthesia, surgical shock, diverse preoperative, postoperative and

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operative factors which greatly perturb in some way or other the acid-base balance).

ANESTHESIA AND ALKALINE RESERVE

Morris and other North American authors have demonstrated that general anesthesia lowers the alkaline reserve, more so with the use of chloroform than with ether. They blamed this on the production and neutralization of ketogenic bodies. Short is of the opinion that the formation of ketogenic bodies is not sufficient evidence to explain the lowering of bicarbonate concentration in the plasma. Killian has found that the lowering of CO_2 is much less when nitrous oxide and oxygen or spinal anesthesia is used.

Provenzano, according to personal observation, maintains that ether anesthesia produces a marked lowering of the alkaline reserve, that spinal anesthesia lowers it in a still more marked degree, but that local and regional anesthesia produce almost no change at all. He presumes that the consequent fall in blood pressure gives rise to more or less blood stasis, with a concentration of blood hemoglobin, and the retention of alkalis in the tissues, with a corresponding diminution in the blood, a mechanism which has been widely studied, especially by Dautrebande.

Henderson, Ambard and Callet, Schmid, Schwarz and Wieland have shown experimentally that at the beginning of all anesthesia (phase of excitement) the alkaline reserve decreases, owing to the fact that the first effect of every anesthesia is to excite the respiratory center (excretion of CO_2, due to greater lung ventilation), as well as all the other nerve centers. However, in the course of the anesthesia (surgical stage) the alkaline reserve rises, often above normal. The explanation of this is that the apparatus now used by anesthetists is so constructed that the patient inhales air rich in CO_2 (closed method of anesthesia). Patients undergoing the open method of anesthesia also show a rise in the alkaline reserve; however, this may be explained on the basis of the depression of the nerve centers following the excitation of the same.

The modern concept of surgical shock is manifold: anesthetic shock (a complex mechanism); psychic shock (anxiety, fear, emotion, insomnia, worry), causing excitement with consequent depression; hemorrhagic shock, due to more or less bleeding, and causing a diminution of base; and operative shock, characterized by fever (aseptic or septic), which causes an accumulation of acid due to protein decomposition. We may also include in the concept of surgical shock the preoperative use of purgatives, a practice now abandoned, which causes dehydration and elimination of alkali by the intestinal route. There are also many other preoperative, postoperative and operative factors that upset the acid-base balance.

ACID-BASE BALANCE IN HIGHLANDS

The study of the alkaline reserve of surgical patients is obviously of great importance, since the presence of acidosis or alkalosis has a great bearing on proper surgical management. So it is obvious that when the environment, *sui generis*, produces changes in the acid-base balance, great importance should be attached to these changes. A thorough knowledge of them is essential for proper surgical management.

The Mexican investigators have studied this problem in its two fundamental phases: (1) the lowering of the partial pressure of oxygen, investigating polycythemia as the means of adaptation to high altitudes (Vergara-Lope, Herrera, Ocaranza, Izquierdo); (2) the CO_2 factor in conditions of respiration, with its natural repercussion on the acid-base balance (Manzanilla, Manzanilla-Aguilar, Miranda, Perrin).

The results of the study of the second aspect are of great practical interest to the surgeon for many reasons, especially because of the great danger of applying nor-

mal values for low altitudes to persons who live in and are adapted to high altitudes.

Findings in the first ten cases which I studied were published in my *Tesis de México* in 1924.[3] This was admittedly a very limited number of cases, and no accurate conclusions could be drawn from them; the figures fluctuated between 56 and 62 vol. per cent, with an average of 59.4.

Mexico City is situated at 2,260 meters above sea level, with an average annual barometric pressure of 585 mm. to 10°. However, the results obtained are within the physiological limits set by other authors who have used the Van Slyke and Cullen method. Van Slyke, Stillman and Cullen have set 53-75 vol. per cent as the normal for adults, considering less than 50 vol. per cent as acidosis. In children, the normal values are 43-65 vol. per cent.

Later I increased the number of cases studied to 100, obtaining normal values which compare interestingly with those found at sea level. The values obtained were between 48.11 and 64.2, figures that have been commented on and discussed by Miranda[9] and Perrin.[10] Lately I have raised my study cases to 500, a number from which reliable conclusions can be drawn. The results of my investigations were presented to the Academy of Surgery,[4] the Academy of Science[5] and the Congress of Brussels.[6, 7, 8]

Almost all my observations were made on adults (about thirty years old) and on people adapted for at least two generations to life in the highlands. A few, however, were made on people who had been living for at least five years in the highlands, with the purpose of eliminating the factors involved in the process of adaptation.

The normal values for alkaline reserve gave an average of 59 vol. per cent, with oscillations between 50-64.3 vol. per cent, in 96 per cent of the cases; 48.1-49.7 vol. per cent in 2 per cent; and 68-71 vol. per cent in the other 2 per cent.

Perrin[10] published data that entirely agree with mine. Using the Marriot method, he found in normal individuals an average CO_2 tension in the alveoli of 30 mm. and a minimum of 25 mm., while the publications of other authors put the normal limits between 45 and 40 mm. According to the Marriot method, tensions of 35 to 30 mm. are considered as acidotic, and tensions of 20 mm. as extremely dangerous.

ALKALOSIS AND ACIDOSIS

In the study of the mechanism regulating the acid-base balance, it has been found that the C_H of the blood is directly proportional to the relation betwen the CO_2 in solution as H_2CO_3, and $NaHCO_3$, multiplied by a constant. Expressing this in chemical terms, it is the molecular relation $H_2CO_3/NaHCO_3$. This relation being 1:20, we can define acidosis and alkalosis according to this equation as the states in which the proportion of H_2CO_3 to $NaHCO_3$ is higher or lower than 1:20. This "CO_2-ratio" of Haggard and Henderson is also called the "true relation of the acid-base balance." For clinical purposes, the "buffer" action may be considered as based on this.

On the variations of this index is based the classification of acidosis and alkalosis as put forward by Haldane. When the denominator changes, the alkalosis or acidosis is called "non-gaseous," depending on whether it is decreased or increased. When the changes occur in the numerator, it is "gaseous alkalosis" or "hypercapnea" if it increases, and "gaseous acidosis" or "hypocapnea" if it decreases.

It is interesting to note that in "gaseous acidosis," there being a rise in the dissociation of H_2CO_3 and a rise in $NaHCO_3$ due to the excretion of acids or to a retention of alkalies by the kidneys, as well as a shift of the alkalies from the tissues to the blood, there is a state of acidosis with increased alkaline reserve which is called, for this

reason, "pseudoalkalosis." The reverse takes place with "gaseous alkalosis," where the curve of dissociation of the H_2CO_3 and the $NaHCO_3$ diminishes, owing to the escape of alkali through the urine, the retention of acid by the kidneys or the shift of the bases from the blood to the tissues; an alkalosis is found, with a decreased alkaline reserve, which for this reason is called "pseudoacidosis."

The low values I have found for alkaline reserve in normal adults cannot and should not be interpreted as acidosis, since we are dealing here with individuals adapted to high altitudes, in whom there is no change in the respiratory volume, frequency or rhythm. If my data are combined with those of Perrin, who gives the CO_2 tension in alveolar air, one can readily see that the $H_2CO_3/NaHCO_3$ relation is not affected. There is, therefore, no reason why these low values for people in the highlands should be interpreted as acidosis. The tendency to do so is incorrect, since diminution in the alkaline reserve does not always mean acidosis.

Miranda[9], referring to my investigations, states that where normal conditions exist in the individual, as well as in the production of CO_2 and the characteristics of pulmonary ventilation, there must be an alveolar air in which the centesimal proportions of oxygen and CO_2 are identical with those existing at sea level; and that the difference exists only in the partial pressure of these gases, since the total atmospheric pressure is 585 mm. instead of 760 mm. If this theory is correct, the centesimal value of CO_2 in alveolar air of 5.6 per cent should be the same in the highlands as it is at sea level; only instead of a partial pressure of 42.5 mm., there should be one of 32.7 mm., a figure which very nearly approaches the 30 mm. found by Perrin.[10]

The low alkaline reserve which I have found in adults adapted to life in high altitudes constitutes a reaction against the transitory alkalosis which causes the low partial tension of CO_2 in the alveolar air, there being no alterations whatsoever in the 1:20 relationship mentioned above, since the diminution in the numerator is proportional to that in the denominator.

So, although it is true that the figures for alkaline reserve in high altitudes, as studied in the Valley of Mexico, are higher than those obtained at sea level, they do not indicate a state of acidosis, for the reasons already discussed. In the same manner there is a lowering of the alkaline reserve which does not indicate acidosis, and a rise in the same which does not mean alkalosis. This is explained by the mechanism discussed above.

This difference in normal values for aklaline reserve among people adapted to life in the highlands and in those adapted to life at sea level must be borne in mind whenever surgical treatment is contemplated on people living in high altitudes, as well as on persons traveling through the highlands but living at sea level, and vice versa. Otherwise serious errors may result from a mistaken belief that a normal person is in a state of acidosis or alkalosis (or vice versa).

SUMMARY

The CO_2 factor in the conditions of respiration in the Mexican highlands has been studied in an attempt to arrive at the normal values of the alkaline reserve in normal adults adapted to life in high altitudes. A thorough knowledge of the alkaline reserve is important in modern surgical practice; it is consequently important to know what changes take place in these normal values among people adapted to life in the highlands.

The normal values for the alkaline reserve in Mexico City, and in the whole Valley of Mexico, are much lower than those found at sea level, but they do not indicate acidosis; there exist diminutions of

the alkaline reserve that do not mean acidosis and increases that do not mean alkalosis.

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RÉSUMÉ

Élévées altitudes réserve alcaline et chirurgie

Le facteur de l'CO_2 sur les conditions de la respiration dans les pays montagneux du Mexico a été étudié pour essayer d'arriver aux valeurs normales de réserve alcaline dans les individus normaux adaptés à la vie dans élévées altitudes. Une profonde connaissance de la réserve alcaline est importante dans la pratique de la moderne chirurgie; pour ça ie est important de savoir quelles modifications ont lieu dans ces valeurs normales parmi les populations adaptées à la vie dans les pays montagneux.

Les valeurs normales pour la réserve alcaline en Mexico City et dans toute la vallée du Mexico sont beaucoup plus basses que celles trouvées au niveau de la mer, mais ils ne indiquent pas acidose; il existe une diminution de la réserve alcaline qui ne signifie pas acidose et un acroissement qui ne signifie pas alcalose.

ZUSAMMENFASSUNG

Höhenlage, Alkalireserve und Chirurgie

Um die normalen Werte der Alkalireserve, bei normalen Erwachsenen zu finden, welche an das Leben in grossen Höhenlagen angepasst sind, wurde die CO_2 Komponente bei der Atmung in Mexicanischen Hochländern Studiert. Bei der Ausübung moderner Chirurgie, ist eine gründliche Kenntnis der Alkalireserve wichtig, folglich istnes wichtig zu wissen, welche Veränderungen dieser normalen Werte bei Menschen stattfinden, welche an das Leben in grossen Höhenlagen angepasst sind. Die normalen Werte der Alkalireserve sind in Mexico City und in dem Valley of Mexico viel niederer als diese welche am Meerespiegel gefunden werden, doch weisen sie nicht auf Acidose hin; Es gibt eine Veringerung der Alkalireserve welche nicht Acidose und eine Zunahme welche nicht Alkalose bedeutet.

SUMARIO

La reserva alcalina en las grandes altitudes y su relación con la cirugía

Los factores de CO_2 en la respiración en las grandes altitudes mexicanas, han sido estudiados en un experimento llevado a cabo en los valores normales de la reserva alcalina en adultos normales adaptados a las grandes alturas. El conocimiento de la reserva alcalina es importante en la cirugía moderna; es interesante conocer que cambios toman lugar en los valores normales de las personas adaptadas a vivir in las altiplanicies. Los valores normales de la reserva alcalina en la Ciudad de Mexico y en el Valle de Mexico son mucho mas bajos que los encontrados al nivel del mar, pero no indican acidosis. Tambien se han encontrado aumentados sin que lleguen a la alcalosis.

RIASSUNTO

Altitudini elevate, riserva alcalina e chirurgia

Il fattore dell'CO_2 sulle condizioni respiratorie negli altipiani Messicani è stato studiato per tentare di arrivare ai normali valori di riserva alcalina in individui nor-

mali adattati alla vita in elevate altezze. Una profonda conoscenza della riserva alcalina è importante nella pratica della moderna chirurgia; perciò è importante di sapere quali modificazioni avvengono in questi valori normali tra le popolazioni adattate alla vita negli altipiani. I valori normali per la riserva alcalina in Mexico City e in tutta la valle del Mexico sono molto piú bassi di quelli trovati al livello del mare, ma non indicano acidosi; esiste una diminuzione della riserva alcalina che non significa acidosi e un aumento che non significa alcalosi.

POST GRADUATE TEACHING FOR MEMBERS AND FELLOWS

Under the Auspices of the United States Chapter of the International College of Surgeons and Its Post Graduate Study Guilds

In performance of its educational program, the United States Chapter of the International College of Surgeons will initiate in October special courses of instruction in anatomy, both topographic and regional. This will cover surgical procedures, surgical anatomy and autopsy instruction, with special reference to macroscopic recognition of tissue changes and morbid anatomy; and will be supplemented with microscopic and histologic confirmation of macroscopic tissue changes in disease. These courses of instruction will be made of special interest through clinical demonstrations by surgeons, in coordination with the Credential privileges extended to members and affiliates of the Chapter.

The courses will be given by specialists, using adequate equipment and material, for the benefit of affiliates of the United States Chapter of the International College of Surgeons in Philadelphia, New York, Chicago, Toledo, Ohio, and at Creighton University, Omaha, Nebraska, where affiliates of the Nebraska Post Graduate Study Guild will be given excellent opportunities for basic instruction in surgery.

This is but the beginning of a far-reaching program of postgraduate instruction carrying out the aim of the United States Chapter of the International College of Surgeons, to afford ample facilities for the elevation of surgical performance and teaching of its affiliates and members.

Further announcements will be made in the Journal of the International College of Surgeons as to exact locations, dates and instructors.

Editorial

The Surgeon and Euthanasia

THE question of legalizing the practice of euthanasia by physicians in such cases as inoperable cancer is one of vital interest to the practicing physician and especially to the surgeon. In England the Euthanasia Society has enlisted the support of over a thousand of the most noted physicians, scientists, clergymen and laymen, and in this country a similar organization has acquired a noted sponsorship in the short space of three years.

This question cannot be put aside lightly. It affects all of us personally and professionally. There is much to be said both for and against the philosophy of merciful release from useless suffering, and it is well for the surgeon to give thought to it. On the one hand, it is argued that while death is inevitable, euthanasia is against the laws or God and man, even for the purpose of relieving unnecessary and futile suffering. Life is given to man by a higher power and only that power can end it, and will end it at the predestined time. Life is a sacred thing, so sacred that it must not be interfered with for any purpose or for any reason whatsoever. God gave life and only God can take it. This is the position of certain religious bodies, particularly the Catholic Church. These bodies maintain also that physical suffering, such as is involved in metastatic cancer, for instance, is ordained by God and serves a useful purpose in cleansing the soul and preparing it for the future life. The Catholic position has been well stated by Dr. J. J. Walsh (*Forum*, December, 1935) and Dr. V. P. Mazzola (*Medical Times*, November, 1940).

Another opposing opinion is held by physicians who maintain that it is the duty of the physician to prolong life and under no conceivable circumstances to shorten it. Physicians also insist that in the lexicon of their profession there is no such word as "incurable." While there is life there is hope. They will tell of cases in which a patient who was pronounced incurable by the best medical minds later got well, or at least recovered sufficiently to outlive some of those who predicted his early demise.

Then these opponents advance the argument that what may be termed incurable today may become curable tomorrow, and point to the discovery of insulin in the treatment of diabetes and the recent miracles performed by the sulfonamides. Finally, they argue that the suffering of terminal cancer can be relieved or diminished by the use of narcotics and the patient made comfortable, or nearly so, until the end.

All of these arguments have their merit and they cannot be brushed aside by a word. There is something fundamental in the human mind which makes us shrink with horror at the thought of shortening the life of a human being, even though he begs for release from his suffering. We feel the same way at the thought of ending the life of newly born human monstrosities and imbeciles, creatures that can never be human or live normal human lives. Deep

down in our hearts, we wish that the incurable sufferer, the imbecile and the monstrosity would cease to live—but through the intervention of a higher power. We often feel and express the feeling that death would be a blessing; nevertheless, we feel it is not right for us to assume the responsibility of such intervention.

Those who favor the legalization of euthanasia have an answer for all of these arguments. If it is against the laws of God and man to take human life, they ask, why do nations send the flower of their youth to kill the youth of other nations, and to be killed themselves? And, they ask, why do the ministers of God bless these men who go out to kill? Of course, they say, the answer is that these men are killing each other for national reasons, whatever they may be, and therefore the killing is justifiable. So killing the finest young men of the land becomes justifiable. It is also considered justifiable to kill a man by electricity or hanging because he committed a capital crime. He killed a man; therefore the state, for its own protection as a sovereign power, has the right and the duty to kill him. So here, they point out, are two instances in which ending the life of men in their prime cannot only be justified in a legal and moral sense but is attended with the prayers and blessings of the ministers of God.

They emphasize the fact that legalized euthanasia is not intended to apply to healthy men in the prime of life; that it applies only to persons, usually of advanced age, who beg to be relieved of suffering which can serve no useful purpose, because death is merely being postponed until final dissolution intervenes. They ask, "Is it not a humane act to accede to the pleading of a man wracked in pain and agony which narcotics can no longer relieve, a burden to himself and his family?" They deny the implication that euthanasia means killing; and insist that the man who seeks euthanasia, for whom it is intended, is actually more dead than alive, dead except for the faint spark that keeps his heart throbbing.

Euthanasia, according to their view, merely shortens the siege of mental and physical suffering which otherwise must be dragged out for months or perhaps years until the inevitable dissolution of the body by exhaustion. They maintain that euthanasia under these conditions is a purely humanitarian act, the relief of useless suffering. They point to the laws of the land, which make it illegal to permit a dumb animal to suffer if its injury or disease cannot be cured, and they ask whether there is any reason for permitting a human being to suffer unnecessarily just because he happens to be a human and not a horse or a dog. They say the man is entitled to as much human sympathy as a dumb animal. Yet, the law holds the physician guilty of murder if he applies his sympathy to a human being.

These proponents believe that to end useless suffering by euthanasia at the pleading of the sufferer not only is not a violation of the laws of God and man, but is in reality the highest form of spiritual obedience to those laws. They, too, venerate life as a sacred thing, so sacred that avoidable suffering should not be a part of it. They hold that life is not to be measured by its duration alone. They draw the distinction between life and mere living; they say it is not important *how long* we live but *how* we live, and they believe that a life already spent and hanging by a mere thread is not life, but useless and hopeless living. They do not believe that suffering is good for the soul or that it brings the sufferer nearer to his Maker in the spiritual sense. They furthermore do not believe that God inflicts suffering on human beings either for the good of their souls or for any other purpose. They feel they are doing good in the highest sense by ending the useless and hopeless struggle. Furthermore, the Euthanasia Society of America, sponsor of this

movement, supports this belief with an Ethical Statement, signed by a large number of prominent clergymen, to the effect that the practice of euthanasia should not be regarded as contrary to the teachings of Christ or to the principles of Christianity.

The proponents of euthanasia also claim to have a considerable degree of support from medical men. They point to a questionnaire recently sent out to the physicians of New York State. Of some 4,000 physicians who responded, over 80 per cent were in favor of the Society's program, and on its Advisory Council and Board of Directors are found the names of many of the most noted American physicians and surgeons. In answer to the argument that it is the duty of the physician to prolong life and not to hasten its end, they say it is likewise the duty of the physician to relieve suffering; and, if the suffering is due to a condition for which there is no known cure, the prolongation of such suffering is a distinct violation of the humane instincts of the physician.

They point to the helplessness of the physician in the face of inoperable cancer and to the common belief that doctors do surreptitiously what euthanasia proposes should be done legally. They argue that if the physician cannot relieve the sufferer and restore him to health, he should have the legal right to make easier the passage into the beyond, at the pleading of the sufferer, without being branded a criminal. They hold that what is considered incurable today is definitely incurable insofar as any particular dying patient is concerned. They argue that if a cure for cancer is discovered tomorrow, there will be no need for euthanasia; but such a cure, if and when discovered, cannot be of the slightest benefit to the man who is dying of cancer today. They admit that physicians are only human and may be mistaken in declaring a case of metastatic cancer incurable, but they also hold that such instances are extremely rare and that if the patient does survive beyond the days expected by his physicians, it is a mere extension of the inevitable for a short suffering period. In any event, as legalized euthanasia is a purely voluntary concept, there can be no compulsion, no need even for considering it, if the patient shows the slightest tendency to recover and a desire to live.

They maintain that narcotics do not control the pain of cancer in the last stages, and they find corroboration in a recent article on the subject by Dr. Lyndon E. Lee in the *Journal of the American Medical Association* (Jan. 18, 1941). Dr. Lee recommends that the use of morphine in terminal cancer be condemned if it can possibly be avoided, and concludes that narcotics are not requisite or even desirable in all terminal cases of cancer, because they lose their effectiveness and create too many undesirable side effects.

Advocates of euthanasia go beyond the patient himself. They believe that the long-drawn-out, useless struggle has a demoralizing effect on the entire household of the patient. They point to the tremendous strain to which the family and relatives are subjected, often to the extent of complete mental and physical prostration, all in a useless and hopeless struggle. They also stress the damaging effect on the social and economic status of the family, resulting from the exhaustion of available funds and often ending in abject poverty, a supreme sacrifice to no purpose whatever.

We present our readers with these arguments, pro and con, because of the serious problems involved, and we bespeak for them the most earnest thought and consideration.

The President's Page—United States Chapter

THE President's letter to the membership of the International College of Surgeons, reaching every member of the organization through the pages of its Journal, has the far-reaching purpose of familiarizing all those interested in the welfare and progress of the College with its activities and accomplishments.

The past two months have been significantly productive of Guild performance through the Middle and Far West, as shown by the large attendance at the sessions of the Guilds. Not only did the highly successful scientific meetings reflect the care of the officers in the preparation of attractive surgical programs, but the social events created, by their personal touch, an enthusiasm which added materially to the success of the sessions. The programs showed careful selection of live, up-to-the-hour subjects, with special discussions leading to enthusiastic general participation by the members present, all leading to a development of the true scientific spirit and spreading the educational ideals for which the College is responsible.

In connection with this midwestern program, arrangements were made by the California chapter to carry through the Los Angeles meeting in consonance with the meetings in Colorado, Nebraska and Montana, illustrating how carefully and comprehensively these early spring meetings were planned and carried out by the Officers, Fellows, Members, and guests of the respective Guilds.

That the College is keenly alert and unceasingly set upon the dissemination of its constructive policies and the internationalization of its ideals, is shown by the reports of organization of Chapters throughout the Americas, and the enthusiastic cooperation that the College is receiving from the universities, faculties and medical organizations of the Ibero-American nations. The complete organization and active functioning of the Hondurean Chapter is the last word we have received; definite progress is also reported from other medical centers in Central and South America, where the committees in charge are devoting their best efforts toward the completion of Chapters in consonance with the parent organization and the constitution and by-laws of the International College of Surgeons.

The scientific program for the forthcoming International Assembly in Mexico City, to be held August 10-14, is nearing completion. Not only can it be stated beyond a shadow of doubt that the program offers much of great scientific value in the discussion of important medical and surgical problems; but the international contributions are so vast and far-reaching that it might be safe to state that in the history of medical and surgical congresses and assemblies, this will stand out as the most productive, not only of present good, but of the future progress of the program sponsored by the International College of Surgeons. Notwithstanding the European crisis and consequent impediments, many foreign delegates will participate in the scientific program of the Assembly.

These activities of the College in all its avenues of development are not only in constant motion, but are backed by the greatest interest and enthusiasm of all concerned.

DESIDERIO ROMÁN, M.D., PRESIDENT

International Assembly of the International College of Surgeons

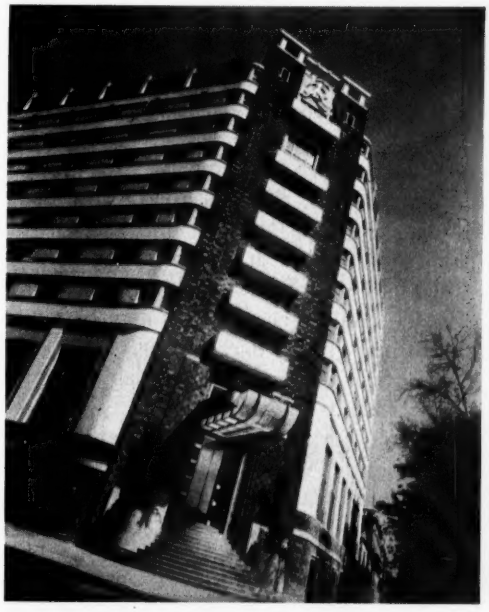
AT THE INVITATION OF THE MEXICAN GOVERNMENT
MEXICO CITY, AUGUST 10 to 14, 1941

HOTEL ACCOMMODATIONS

ON the tree-lined Paseo de la Reforma, a world-famed boulevard which leads from the heart of the Mexican Capital to legendary Chapultepec Castle and park, amid whose ageless sycamores, the Aztec emperors were wont to relax and where Maximilian and Carlotta resided during their brief reign, stands an imposing modern structure in white and maroon stone: the Hotel Reforma, selected as the official headquarters of the convention of the International College of Surgeons, August 10 to 14.

Proud are Mexico City residents of their newest and finest hotel. The building is fireproof, air-conditioned throughout, with purified, circulating ice-water in every room, and the refinement and quiet elegance of a truly fine hotel. Within the premises are dozens of fashionable shops, two night clubs, a bank, ample lounging and rest rooms. From the roof garden a breath-taking view of the Valley of Mexico is to be had in all directions. In that translucent atmosphere, all hues are softened to delicate pastel shades of pink and purple and light green, and in the distance a magnificent backdrop is furnished by the two volcanoes, Popocatepetl and Ixtacihuatl, forever crowned with snow.

The Reforma management has set aside for the convention its spacious mezzanine, where exhibitors approved by the organizing committee will place their stands. Also reserved is a wing of the roof garden, where, for the benefit of the visiting surgeons, the scenic beauties of central Mexico will be reproduced in exhibits sponsored by the various regions.



Hotel Reforma, headquarters of the International Assembly of the International College of Surgeons, one of the world's most luxurious hotels—one of the best appointed in Latin America. It is air-conditioned and supplies warm, cold and purified water in each room. It has three luxurious dining rooms, salons, bar rooms, cabaret, orchestra and floor shows. Members registering at the hotel will find bank and tourist offices, cable facilities, beauty shop, cigar store, curiosity and souvenir bazaars—all for their convenience.

The plenary sessions will be held in the Queen Maya Room, which the Reforma management has likewise placed at the dis-

The Chula Vista Hotel in Cuernavaca, where elaborate programs of College activities will take place.

posal of the convention. Ordinarily used as the main dining room, it will be closed to the public during that period. It offers ample facilities for the purpose, seating in comfort over two hundred and fifty guests. It owes its name to an original statue of a Maya queen, disinterred not long ago, which now stands at the place of honor.

The Hotel Reforma offers other rooms at which committee meetings may be held, or informal groups may gather. The Della Robbia Salon, containing valuable works of the famed Italian sculptor, is one of them; another is the Beethoven Room, where organ recitals may be enjoyed in deep-tufted comfort.

Hotel La Marina, Acapulco, where the banquet and other social functions will be held.

There is also the tap room, one of Mexico City's gayest cabarets, where convivial spirits may gather nightly to dance to a tropical orchestra. An excellent floor show presents the best in Mexican entertainers.

The other hotels at which members will be accommodated are the Chula Vista Hotel in the city of Cuernavaca and the Hotel La Marina, where the official banquet, which will be a gala affair, will be held. The accompanying illustrations depict some of the magnificence of these ultramodern hostelries. The Reforma and the Chulavista offer all the comforts of a modern inland hostelry and the latter all aquatic attractions.

RAILROAD CONNECTIONS

The Wabash Railway serves a rich agricultural and commerical territory en route to St. Louis.

From St. Louis the Missouri Pacific lines follow the west bank of the Mississippi River, the Father of Waters, for many miles, the high cliffs on the opposite side creating a continual succession of picturesque scenes, which pass in review as the train wends its way southward. We then pass through the foothills of the Ozarks and the beautiful Arcadia Valley before arriving at Little Rock, the capital of Arkansas. The following morning (Thursday) around seven-thirty, we pass through the heart of the world's largest oil fields in east Texas. Early in the afternoon we pass through San Antonio and at 8:50 P.M. arrive at Laredo (the Mexican border point) where customs inspection will be held. The authorities are cordial and efficient and the inspection is accomplished with a minimum of red tape. The next day (Friday) we traverse Mexico's great central plateau, passing through Monterrey, Saltillo, San Luis Potosi and many small Indian villages.

The National Railroad Company of Mexico is making the following allowances inside the national boundaries: Members

are to pay regular fare for one way tickets and only 25 per cent additional for round trip tickets.

AIR TRAVEL

A discount of 25 per cent for those attending the International Assembly who utilize the Pan American Airways or the Mexican Company of Aviation has been arranged for by Dr. Manuel A. Manzanilla.

CALENDAR OF EVENTS

Mexico City, with a million and a quarter inhabitants, capital of the Mexican Republic, vibrant with over six centuries of dramatic history, traditions and romance, is the oldest metropolis on the American continent. It is also one of the largest and most modern cities in Latin America. Few cities in the world enjoy such a propitious climate, such incomparable surroundings, such a majestic setting.

SATURDAY, AUGUST 9.—Upon arrival at Mexico City at 7:35 A.M., there will be an official Mexican welcome at the station, after which each member will be taken to the hotel to which he has been assigned by the Organization Committee. The Reforma Hotel will be the official headquarters, and we will endeavor to locate as many of our members as possible at this hotel.

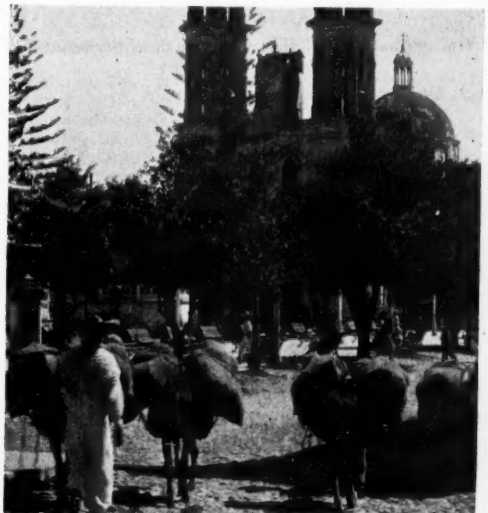
Registration will take place at the Organizations' Committee's Office, Reforma Hotel, Saturday, August 9, from 4 P.M. to 8 P.M., and Sunday, August 10, from 10 A.M. to 2 P.M.

SUNDAY, AUGUST 10.—At 10 A.M. we will motor to Mexico's National Independence Monument, located on the Paseo de la Reforma, where the International Assembly President will deposit a floral wreath before the eternal light which burns there in honor of the heroes who died for their independence. Assisting in this solemn ceremony will be an official from the city government.

At 11 A.M. we motor to the monument of the renowned Mexican surgeon, Dr. Francisco Montes De Oca, which is located in San Pablo Park. Here the International President of the College will deposit a floral offering, thus symbolically honoring Mexican surgery.

View of the City of Cuernavaca from the dining room of the Chula Vista Hotel.

At noon we will motor to the monument of Louis Pasteur, which is located in Cuauhtemoc Square on the Paseo de la Reforma. Here the International Past-President will deposit a floral wreath, and the College will proclaim its motto, "La Sciencie n'a pas de Patire (science has no boundaries)."



Street scene in Taxco, Mexico, one of the points which will be visited during the numerous excursions which are being arranged.

At 1 P.M. at the Hotel Reforma the scientific and commercial exhibits will be formally opened by the secretary of the Organization Committee.

At 4 P.M. a motor tour will be taken to the castle of Chapultepec in Chapultepec Park. Here the Governor of the Federal District, in the name of the City of Mexico, will entertain at an afternoon concert, during which he will declare all of the delegates to the Convention honor guests of the city. Tea will be served in the beautiful terraces of the palace of Chapultepec, where Maximilian and Carlotta once held court. Music will be furnished by the Mexico City Police Band and the city's Tipica Orchestra.

HOUSE OF DELEGATES MEETING

The members of the House of Delegates will meet as provided by the constitution and bylaws at the Reforma Hotel between August 10 and 14. Time and place will be announced on the bulletin board.

Articles X and XI of the constitution and bylaws of the International College of Surgeons read as follows:

ARTICLE X

Officers and Legislative Body of the International College of Surgeons

1. Officers shall be as follows:
   1. International President
   2. International President-Elect
   3. Immediate Past-President
   4. International Vice-Presidents (three to five in number)
   5. International Treasurer
   6. International Executive Secretary

2. The *General Assembly* shall consist of all the Members of the International College of Surgeons in good standing and shall be the supreme legislative body.

3. The *House of Delegates* shall hold its regular meetings during the regular General Assembly of the College and shall constitute the *legislative* organization of the College.

4. The House of Delegates shall consist of:
   a. Delegates elected by the various countries to represent them respectively.
   b. The International Board of Trustees.
   c. The International Executive Council.

The world at large shall be divided into international regions, or districts, such as Europe, the Near East, Asia, Australia and the American Continents, South, Central, and North.

At the head of each international region there shall be an international regional secretary and treasurer. The number of international regional secretary-treasurers shall be dictated by the needs of the moment.

5. The *governing bodies* of the International College of Surgeons shall be:
   1. The House of Delegates.
   2. The International Board of Trustees.
   3. International Executive Council.

ARTICLE XI

Components of the House of Delegates

Each country represented in the College shall be entitled to elect delegates to the House of Delegates as follows: one delegate for the first hundred members or fraction thereof; one additional delegate for the next additional two hundred members or fraction thereof; one additional delegate for each additional three hundred members or fraction thereof. No chapter shall have more than five delegates, regardless of its numerical size. Each elected delegate may have an alternate to serve in the event the duly elected delegate should be absent.

By order of Dr. Fred H. Albee, International President. Dr. Max Thorek, International Executive Secretary.

PROGRAM

Opening Address: The President of Mexico, His Excellency, Manuel Avila Camacho, is expected to open the Assembly.

Other Addresses: Chairman of the Organization Committee. President of the International College of Surgeons. Secretary of the International College of Surgeons. Convocation and conferring of degrees and Honorary Fellowships of the International College of Surgeons.

High Mexican Government officials and diplomatic representatives will be present, and the program will be broadcast over the Mexican network, broadcast arrangements being in charge of the Director General of Information, Department of the Interior of Mexico.

Regular scientific sessions of the International College of Surgeons will be held in the Reina Maya and Beethoven rooms, as follows:

MONDAY, AUGUST 11

9 A.M. to 1 P.M.—Scientific program (see program of scientific addresses below).

1 P.M.—Recess.

3 P.M. to 7 P.M.—Scientific program.

TUESDAY, AUGUST 12

9 A.M. to 1 P.M.—Scientific program.

1 P.M.—Recess.

3 P.M. to 7 P.M.—Scientific program.

WEDNESDAY, AUGUST 13

10 A.M. to 1:30 P.M.—Scientific program.

1:30 P.M.—Recess.

3:30 P.M. to 7:30 P.M.—Scentific program.

THURSDAY, AUGUST 14

8 A.M. to 1 P.M.—Special surgical and diagnostic clinics correlating the papers previously presented at the scientific sessions will be arranged by the Hospital Commission of the Organization Committee.

2 P.M.—Special picnic luncheons.

5 P.M.—The entire group will leave for Cuernavaca by automobile over forty-seven miles of excellent and highly picturesque highway winding across the mountain rim south of Mexico City. Here a banquet and dance will be given at the beautiful Chula Vista Hotel by official courtesy of the Organization Committee (tropical evening attire). Cuernavaca was chosen by the Conqueror, Don Hernando Cortes, as the location for one of his palaces, which stands intact to this day. It is also the site of Don Jose de la Borda's famous gardens, which later became the summer home of Emperor Maximilian. This indescribably beautiful city, with its splendid old churches, colonial mansions and idyllic gardens, is at present the favorite vacation resort of Mexico City.

PROGRAM OF SCIENTIFIC ADDRESSES

ARGENTINA

JORGE, DR. JOSE MANUEL, Buenos Aires. Professor of the Faculty of Medicine; member of the International Society of Surgery and the International Society of Gastroenterology.

Subjects: (1) "Importance of the Biologic Treatment in Biliary Surgery." In collaboration with Drs. Oswaldo Berisso and M. Rey. (2) "The Surgical Technic of Operations on the Adrenal Glands." In collaboration with Dr. Carlos de Nicola. (3) "Radiologic Aspects of the Acute Abdomen." In collaboration with Dr. Thomas Iturrioz.

MIRRIZZI, DR. PABLO LUIS, F.A.C.S., F.I.C.S., Cordoba. President of the Surgical Society; professor of the Faculty of Medicine; delegate of the Assembly of the National University and the Society of Surgery.

Subject: To be announced.

PALACIO POSSE, DR. RAMON, Buenos Aires. Member of the International Society of Surgery and the Society of Esthetic Surgery of Paris and New York.

Subject: "Surgical Treatment in Mammary Hypertrophy."

PAVLOVSKY, DR. ALEJANDRO J., F.I.C.S., Buenos Aires. Adjunct professor of surgery of the Faculty of Medicine.

Subject: "Treatment of Extensive Vesicovaginal Fistulas: Operative Technic."

ROFFO, DR. ANGEL H., F.I.C.S., Buenos Aires. Director of the Institute of Experimental Medicine for the Study and Treatment of Cancer, University of Buenos Aires; Doctor *honoris causa;* professor and honorary member of various universities, faculties and scientific societies; member of the Academies of Medicine of Buenos Aires, Madrid, Barcelona, Lima, Rio de Janeiro, Caracas, Genoa, Turin, Mexico, and numerous others.

Subjects: (1) "Electrosurgical Treatment of Cancer of the Rectum." In collaboration with Dr. Philip Carranza. (2) "The Surgical Treatment of Cancer of the Larynx." In collaboration with Dr. Robert Ferrari. (3) "Surgical Treatment of Cancer of the Breast." In collaboration with Dr. A. Emanuel. (4) "The Surgery of Cancer of the Urinary Bladder." In collaboration with Dr. Guillermo Iacapraro.

BOLIVIA

IBANEZ BENAVENTE, DR. ABELARDO, F.I.C.S., La Paz. Minister of Labor, Health and Social Security; professor of the Faculty of Medicine; National Regent of the International College of Surgeons for Bolivia.

Subject: "Bone Grafts with Muscular Pedicles."

BRAZIL

BRANCO RIBEIRO, DR. ENRICO, Sao Paulo. Director of St. Luke's Sanitarium; Fellow of the Brazilian College of Surgeons.

Subject: "Ideal Cholecystectomy."

DE GOUVEA, DR. JORGE, Rio de Janeiro. Fellow of the Brazilian College of Surgeons.

Subject: "Bone Grafts."

FERREIRA, DR. FRANCISCO, Bahia.

Subject: To be announced.

LUZ, DR. FERNANDO, F.A.C.S., F.I.C.S., Bahia. Fellow of the Brazilian College of Surgeons; professor of the Faculty of Medicine; Regent of the International College of Surgeons for Brazil.

Subject: To be announced.

VALERIO, DR. AMERICO, Rio de Janeiro. Member of the International Society of Surgery; Docente Libre of the Faculty of Medicine.

Subject: "Endoscopic Surgery of the Prostate and Neck of the Bladder."

COLOMBIA

CAVELIER, DR. JORGE E., F.I.C.S., Bogota. Professor of the Faculty of Medicine of the National University; member of the Academy of Medicine; National Regent of the International College of Surgeons for Colombia.

Subject: To be announced.

The following surgeons have been accredited by the General Sanitary Direction of Colombia to participate in the International Assembly: Dr. J. Esguerra Lopez, director-general de Sanidad Militar; Dr. Miguel Antonio Rueda, surgeon-in-chief of the army. Titles of their papers will be announced.

COSTA RICA

FACIO, DR. ANTONIO A., F.A.C.S., San José. Vice-president of the National Council of Benefaction and Social Protection; general superintendent of the Hospitals of the Republic; ex-president of the Faculty of Medicine; member of the International Society of Surgery.

Subject: "Cesarean Section and Certain Technical Considerations Pertaining Thereto."

CUBA

DE ARAGON, DR. ERNESTO R., F.A.C.S., F.I.C.S., La Habana. President of the National Society of Surgery; vice-president of the Cuban Society of Obstetrics and Gynecology; member of the Academy of Medical Science; professor of the Faculty of Medicine; representative of the University of Havana to the Assembly of the International College of Surgeons.

Subjects: (1) "Local Anesthesia in Vaginal Operations" (with motion pictures). (2) "The Treatment of Fibromyoma of the Uterus" (with motion pictures).

NOGUEIRA, DR. RAFAEL, F.A.C.S., La Habana. Member of the National Society of Surgery; member of the Academy of Medical Science; corresponding member of the Surgical Academy of Paris; member of the International Society of Surgery; delegate of the Cuban Government to the Assembly of the International College of Surgeons.

Subject: "Synthesis of Abdominal Surgery."

RODRIGUEZ, DIAZ, DR. ANTONIO, F.I.C.S. La Habana. Member of the National Society of Surgery.

Subject: "Our Experiences with Total Hysterectomy" (motion picture presentation).

TARAFA, DR. JOSE IGNACIO, La Habana. Member of the American Academy of Orthopedics.

Subject: "Arteropneumoradiography of the Patella" (motion pictures of technic).

ENGLAND

BAILEY, MR. HAMILTON, F.R.C.S. (Eng.), F.I.C.S. Surgeon, Royal Northern Hospital and other hospitals of London; external examiner in surgery, University of Bristol and others; secretary-treasurer of the International College of Surgeons.

Subject: "Surgical Treatment of Tuberculous 'Collar Stud' of the Neck with Skin Involvement."

MAINGOT, MR. RODNEY, F.R.C.S. (Eng.), Hon. F.I.C.S. Senior surgeon to the Royal Waterloo Hospital and the Southend General Hospital; late chief assistant to a surgical unit in St. Bartholomew's Hospital.

Subject: "The Management of Patients with Chronic Gastric Ulcer."

GUATEMALA

CALDERON, DR. GUARDIA RAFAEL ANGELO, Costa Rica, Rector of the National University; professor of the Faculty of Surgery; delegate of the Gautemalan Government and representative of the National University to the International Assembly of the International College of Surgeons.

Subject: To be announced.

PENEDO, DR. ENRIQUE. Surgeon to Gautemalan hospitals.

Subject: "Peritoneoscopy, Peritoneoscopic Biopsy and Endoscopic Peritoneophotography."

The General Direction of Public Sanitation of the Government of Guatemala will designate a delegate to the Assembly. His subject will be announced.

HOLLAND

ESSER, J. F. S. The Hague. Honor guest.

Subject: To be announced.

MEXICO

AYALA GONZALEZ, DR. ABRAHAM, F.I.C.S., Mexico, D.F. President of the Mexican Society of Gastroenterology; member of the Mexican Academy of Surgery, the National Academy of Medicine, the International Society of Surgery, the International Society of Gastroenterology; professor of the Faculty of Surgery; attending surgeon to the hospitals.

Subject: To be announced.

AYALA GONZALEZ, DR. RODOLFO, F.I.C.S., Mexico, D.F. President of the Mexican Society of Transfusions; member of the Mexican Academy of Surgery; surgeon to the hospitals.

Subject: "Blood Transfusion."

BANDERA, DR. BENJAMIN, F.I.C.S., Mexico, D.F. President of the Mexican Society of Anesthetists; member of the Mexican Academy of Surgery, the National Academy of Medicine, the Medical Faculty.

Subject: "Certain Aspects of Cyclopropane Anesthesia."

CARRASCO DE MIER, DR. MATIAS, F.I.C.S., Mexico, D.F. Formerly surgeon to the Spanish Navy.

Subjects: (1) "Ocular Manifestations of Dental Origin." (2) "Certain Aspects of Oral Surgery." In collaboration with Dr. Federico Pascual del Roncal.

CASTILLO NAJERA, DR. FRANCISCO, F.A.C.S., F.I.C.S., Mexico, D.F., and Washington, D. C. Mexican Ambassador to the United States of America; surgeon-general to the army; member of the Mexican Academy of Surgery, the National Academy of Medicine, the Association of Military Surgeons, the National Academy of Medicine of Lima, Peru, the Belgian Society of Urology, the International Surgical Society, and others; honorary member of the Association of Military Surgeons of the United States.

Subject: To be announced.

FERNANDEZ FIERRO, DR. DARIO, F.A.C.S., F.I.C.S., F.I.C.A., Mexico, D.F. Vice-president of the Organization Committee of the International Assembly of the International College of Surgeons; member of the Mexican Academy of Surgery, the National Academy of Mexico, the International Surgical Society; professor of the Surgical Faculty of the University and Hospitals.

Subject: "Parathyroid Surgery." In collaboration with Dr. Manuel A. Manzanilla.

FONSECA GARCIA, DR. FRANCISCO, F.I.C.S., Mexico, D.F. Secretary of the Organization Committee of the International Assembly of the International College of Surgeons; member of the Mexican Academy of Surgery; professor of surgery at the University and Hospitals.

Subjects: (1) "Preoperative Splanchnic Block of Alessandri and Valdoni." (2) "Surgery of the Suprarenals in Relation to Diabetes Mellitus." Both in collaboration with Dr. Manuel A. Manzanilla.

LOPEZ ESNAURRIZAR, DR. MIGUEL, F.I.C.S., Mexico, D.F. Vice-president of the Committee of Organization of the International Assembly and National Regent of the International College of Surgeons for Mexico; member of the Mexican Academy of Surgery, the International Society of Surgery, the International Society of Gastroenterology; professor of the Faculty of Surgery and surgeon to the Hospitals.

Subjects: (1) "Surgical Facies." In collaboration with Dr. Manuel A. Manzanilla. (2) "Biologic Treatment of Hernias."

MANZANILLA, DR. MANUEL A., F.I.C.S., Mexico, D.F. President of the Organization Committee of the International Assembly and National Regent of the International College of Surgeons; member of the Mexican Academy of Surgery, the National Academy of Sciences, the Academy of Medical Science of Havana, the International Surgical Society, the International Society of Gastroenterology; surgeon to the Hospitals.

Subjects: (1) "Parathyroid Surgery." In collaboration with Dr. Dario Fernandez Fierro. (2) "Preoperative Splanchnic Block of Alessandri and Valdoni." In collaboration with Dr. Francisco Fonseca Garcia. (3) "Surgery of Suprarenals in Relation to Diabetes Mellitus." In collaboration with Dr. Francisco Fonseca Garcia. (4) "Surgical Facies." In collaboration with Dr. Miguel Lopez Esnaurrizar.

ORTIZ TIRADO, DR. ALFONSO, F.I.C.S., Mexico, D.F. Director of the Clinic of Ortiz Tirado; member of the Mexican Academy of Surgery; surgeon to the Hospitals.

Subject: "Structural Changes in the Surgery of Bone Grafts."

SANCHEZ NEIRA, DR. IGNACIO, F.I.C.S., Mexico, D.F. General of the Mexican Army; director of Military Sanitation of Mexico; member of the Association of Military Surgeons.

Subject: "The New Military Hospital of Mexico" (with projection slides).

TORRES ESTRADA, DR. ANTONIO, F.I.C.S., Mexico, D.F. Member of the Mexican Society of Ophthalmology and Otorhinology and the Mexican Academy of Surgery; professor of the Faculty of Surgery; surgeon to the Hospitals.

Subjects: (1) "Modifications of the Ciclodialysis of Hein." (2) "The Author's Technic of Dacriocystorhinostomy." (3) "Surgical Criteria in Cataract."

VAZQUEZ, DR. MARIANO, F.A.C.S., F.I.C.S., Mexico, D.F. Member of the Mexican Academy of Surgery and the Mexican Society of Psychiatry and Neurology; professor of the Faculty of Surgery; surgeon to the Hospitals.

Subjects: (1) "Original Surgical Technic of Ventriculography" (with motion pictures). (2) "Original Technic of Craniotomy" (with motion pictures).

VILLANUEVA, DR. AQUILINO, F.I.C.S., Mexico, D.F. President of the Mexican Academy of Surgery; president of the Mexican Society of Urology; member of the National Academy of Medicine and the International Society of Surgery; professor of the Faculty; director of the General Hospital; surgeon to the Hospitals.

Subject: To be announced.

PALESTINE

MANDL, DR. FELIX, F.I.C.S., Jerusalem. Professor of Surgery, University of Hadassah, Jerusalem; member of the International Society of Surgery and of numerous academies and societies; National Regent of the International College of Surgeons for Palestine.

Subject: "Observations and Problems Relating to Operation for Lesions of the Semilunar Cartilage."

PARAGUAY

The National Directorate of the Military Sanitary Board of Paraguay will send a representation to the Assembly. The names and subjects will be announced later.

PERU

BELLO, DR. EDUARDO, F.A.C.S., F.I.C.S., Lima. Member of the Peruvian Academy of Surgery, the National Academy of Medicine, the International Society of Surgery; professor of the Faculty; surgeon to the Hospitals; National Regent of the International College of Surgeons for Peru.

Subject: "The Treatment of Mastosis with Foliculin."

PORTUGAL

VASQUES PEREIRA, DR. EDMUNDO. Surgeon to the Hospitals.

Subject: "Evaluation of Surgical Treatment of Cancer and Some Chemotherapeutic Suggestions."

DOMINICAN REPUBLIC

BREA MESSINA, DR. RAMON A., Trujillo, Mexico, D.F. Envoy Extraordinary and Minister Plenipotentiary of the Dominican Republic in Mexico; professor of the Faculty of Medicine; director of the Hospital Ninos Ramfis; surgeon to the Hospitals; delegate of the Dominican Government and of the University of Santo Domingo to the International Assembly.

Subject: To be announced.

SWEDEN

LUNDH, DR. GOSTA, Landskrona. Professor of the Faculty of Surgery; chief surgeon of the hospital staff; member of the International Society of Surgery.

Subject: "Ten Years' Experience with the Surgical Treatment of Pulmonary Tuberculosis."

TURKEY

NISSEN, DR. RUDOLF, F.I.C.S., Istanbul. Vice-president of the International College of Surgeons; professor and head of the Department of Surgery of the University of Istanbul; member of the International Surgical Society.

Subjects: (1) "Surgery of the Thoracic Esophagus." (2) "Surgery of the Heart."

URUGUAY

Uruguay will be represented by a properly accredited delegation composed of the following distinguished surgeons: Drs. Domingo Prat, Eduardo Blanco Acevedo, Horacio Garcia Lagos, Clivio Nario, Luis A. Surraco, Carlos Stajano, Juan Pou Orfila, Alfredo Navarro, Jose Iraola and Alejandro Nogueira. The titles of their presentations will be published in the official program.

VENEZUELA

BAQUERO GONZALEZ, DR. RICARDO, Caracas. Surgeon of the Gonzalez Lugo Clinic, to the Vargas Hospital and to the Red Cross; chief clinician of the Faculty; member of the International Surgical Society.

Subject: "Permanent Left Colostomy; Modified Cuneo Technic" (with colored motion pictures).

BORJAS, DR. ALFREDO, F.I.C.S., Caracas. Professor of the Faculty; surgeon to the Hospitals; member of the National Academy of Medicine, the International Surgical Society; delegate of the National Academy of Medicine to the International Assembly of the International College of Surgeons.

Subject: "Nicolas and Favre's Disease."

CASTILLO, DR. ANTONIO J., F.I.C.S., Caracas. Dean of the Central University of Venezuela; professor of surgery of the Faculty of Medicine; surgeon to the Hospitals; member of the National Academy of Medicine and the International Society of Surgery; delegate of the Minister of Public Education and the Central University to the International College of Surgeons.

Subject: "Evaluation of Surgery of Gastroduodenal Ulcers."

CASTRO, DR. TRINO, Caracas. Surgeon of the orthopedic clinic of Santa Elisa.

Subject: "Orthopedic Treatment of Anterior Poliomyelitis."

CERVONI, DR. J. M., Caracas. Chief of the urologic service of the Hospital Obrero; formerly assistant in the Urologic Hospital of Paris; member of the International Surgical Society.

Subject: "Renal Lithiasis in Venezuela."

DE BELLARD, DR. E. P., F.A.C.S., F.I.C.S., Caracas. Surgeon to the Hospitals.

Subject: To be announced.

DE LAS CASAS, DR. HERMAN, F.I.C.S., Caracas. Dean and professor of the Faculty of Medicine, Central University; member of the National Academy of Medicine and the International Society of Surgery; representative of the Faculty of Medicine and of the Venezuelan Chapter of the International College of Surgeons to the International Assembly; National Regent of the International College of Surgeons for Venezuela.

Subject: "Fractures of the Neck of the Femur: (a) Fractures *per se*. (b) Pseudoarthrosis and Coxa Vara Traumatica" (with motion pictures).

GARCIA ALVAREZ, DR. JULIO, Caracas. Minister of Health and Social Assistance; inspector-general of the Red Cross; member of the International Society of Surgery.

Subject: To be announced.

LEONARDI, DR. JOSE DOMINGO, F.I.C.S., Maracaibo. Surgeon to the Hospitals; member of the Surgical Society of Zulia; delegate of the Medical and Surgical Society of Zulia to the International Assembly.

Subject: "Inguinal Hernia" (with motion pictures).

TORO, DR. ELIAS, Caracas. Surgeon to the Antituberculosis Sanitorium Simon Bolivar; minister of Health and Public Welfare.

Subject: "The Surgery of Tuberculosis."

NOTE: The actual technic of many procedures of the preceding papers will be demonstrated by the respective surgeons in their hospitals. See final program for details.

UNITED STATES

ACUFF, HERBERT, Ph.D., M.D., F.A.C.S., Knoxville, Tennessee. Visiting surgeon, Knoxville General and Fort Sanders Hospitals; chief of staff, St. Mary's Memorial Hospital; consulting surgeon, Beverly Hills Sanatorium.

Subject: "Thoracic Surgery."

ALBEE, FRED H., B.A., M.D., Sc.D., LL.D., F.A.C.S., F.I.C.S., New York City. International President, International College of Surgeons; consulting surgeon, Pennsylvania Railroad, Seaboard Airline Railway Company and numerous hospitals; consulting orthopedic surgeon, Hospital for Joint Diseases, Sea View, Staten Island and Lutheran Hospitals of New York, and many other hospitals throughout New York and New Jersey.

Presidential Address: "Indications for Surgical Immobilization of Pulmonary and Osseous Tissues Are the Same."

Also: "The Biophysiological Considerations in Treatment of Fracture of the Hip."

BABCOCK, W. WAYNE, M.A., M.D., LL.D., F.A.C.S., Philadelphia, Pennsylvania. Professor of surgery and clinical surgery, Temple University; surgeon-in-chief, Temple University Hospital; surgeon, Philadelphia General Hospital.

Subject: To be announced later.

BACON, HARRY E., B.S., M.D., F.A.C.S., F.I.C.S., Philadelphia, Pennsylvania. Assistant professor of proctology, Temple University; associate professor of proctology, Pennsylvania Graduate School; proctologist, Temple University Hospital, National Stomach Hospital, Graduate Hospital, University of Pennsylvania; visiting and consulting proctologist, numerous hospitals.

Subject: "Surgical Treatment of Prolapse of the Rectum: Report of 700 Cases."

BAEHR, FRANK H., Ph.B., M.D., F.I.C.S., Springfield, Massachusetts. Secretary, New England Section, International College of Surgeons; visiting surgeon, cancer section, Westfield (Massachusetts) State Hospital; consulting surgeon, Springfield Health Department; chairman, Springfield Public Health Council.

Subject: "The Treatment of Rectal Malignancies."

BAILEY, CHARLES P., M.D., Philadelphia, Pennsylvania. Thoracic surgeon, Hahnemann Medical College and Hospital and St. Luke's Children's Medical Center.

Subject: "A New Surgical Procedure in the Treatment of Pulmonary Tuberculosis: A Preliminary Report on Extraparietal Pneumothorax."

BAINBRIDGE, WILLIAM SEAMAN, A.M., M.D., Sc.D., Litt.D., LL.D., C.M., F.I.C.S., F.I.C.A., New York City. International Treasurer, International College of Surgeons; surgical director, Manhattan State Hospital; consulting surgeon, United States Public Health Service, New York District; U. S. Navy, Third District; and a large number of hospitals in the metropolitan area; Surgical Fellow, New York Academy of Medicine; honorary member of many foreign royal academies and national societies of surgeons.

Subjects: (1) Stereopticon cancer clinic, "Tumor Formations in the Mineral, Vegetable and Animal Kingdoms." (2) Motion pictures of the International Congress of Military Medicine and Surgery, held in Washington last year.

BEHREND, MOSES, M.S., M.D., F.A.C.S., F.I.C.S., Philadelphia, Pennsylvania. Senior Regent, State of Pennsylvania, International College of Surgeons; attending surgeon, Jewish and Mt. Sinai Hospitals; thoracic surgeon, department of tuberculosis, Philadelphia General Hospital and Tuberculosis Sanatoria, State of Pennsylvania; consulting surgeon, Foster Home for Jewish Orphans.

Subject: "The Changing Pattern of Collapse Therapy in the Treatment of Tuberculosis of the Lungs."

BLAESS, MARVIN J., A.B., M.D., Detroit, Michigan. Certified by National Board of Ophthalmology; Fellow of Distinguished Service Foundation and American Federation for Clinical Research; attending ophthalmic surgeon, Evangelical Deaconess Hospital.

Subject: "Color Movie of the Barraquer Intracapsular Suction Cataract Operation."

CARSON, WILLIAM J., M.D., F.A.C.S., F.I.C.S., Milwaukee, Wisconsin. Preceptor in surgery, Wisconsin; instructor in surgery, Marquette University; surgeon, St. Luke's Hospital.

Subject: "Surgery of the Ureter" (based on twenty years of clinical experience, with a large amount of autopsy material to correlate the relationship of the ureter to abdominal surgery).

COLLINS, DONALD C., B.A., M.D. (Surg. Path.), L.M.C.C., F.A.C.S., F.I.C.S., Major, Med. Res., U.S.A., U.I., Los Angeles, California. Assistant professor of surgery, Medical Evangelists; attending surgeon, Hollywood Hospital; surgeon, visiting staff, Good Samaritan Hospital.

Subject: "Methods of Reducing the Present Excessive Mortality in Generalized Peritonitis" (based on 5,000 cases and emphasizing the role played by chemotherapy).

CORBUSIER, HAROLD D., M.D., F.I.C.S., Plainfield, New Jersey. President, American Association of Military Surgeons.

Subjects: (1) Greetings from the military surgeons of the United States to the military and naval physicians and surgeons of Mexico and other southern republics. (2) Medico-military symposium.

CROTTI, ANDRE, M.D., F.A.C.S., F.I.C.S., Columbus, Ohio. Past-President, International College of Surgeons; surgeon, Grant, St. Francis, Mt. Carmel and Children's Hospitals.

Subject: Oration, "Cancer as It Stands Today: Original Research."

CUNHA, FELIX, M.D., F.I.C.S., San Francisco, California. Visiting physician, University of California Hospital; instructor in medicine, lecturer in medical history and medical bibliography, University of California; vice-president, National Gastroenterological Society.

Subject: "Primary Edema of the Stomach: Edematous Gastritis."

DIMITRY, THEODORE J., M.D., F.A.C.S., F.I.C.S., New Orleans, Louisiana. Professor of ophthalmology and director of department, Louisiana State Univer-

sity School of Medicine.

Subject: Abstract of an unpublished monograph, "The Story of the Artificial Eye, The Monoply: Motion for the Prothesis, A Plastic Prothesis and a Newer Surgery Towards the Production of Movement for the Prothesis."

DIVELY, REXFORD, M.D., Kansas City, Missouri. Affiliations and subject to be announced later.

DOUGLASS, FRED M., M.D., F.A.C.S., F.I.C.S., Toledo, Ohio. Past-President, United States Chapter, International College of Surgeons; director of surgery, St. Vincent's Hospital; attending surgeon, Toledo Hospital; consulting surgeon, Mercy Hospital, Monroe, Michigan.

Subject: "Surgery of the Gallbladder and Bile Ducts."

DOYLE, THOMAS, M.D., F.A.C.S., F.I.C.S., Philadelphia, Pennsylvania. Associate professor of surgery and lecturer in general and plastic surgery, Hahnemann Hospital; senior surgeon, Hahnemann Hospital; consulting surgeon, Broad Street Hospital.

Subject: "Moving Pictures of Plastic Surgery."

EAGLETON, WELLS P., M.D., F.A.C.S., F.I.C.S. Medical director, Newark Eye and Ear Infirmary; chief of the division of cranial surgery, Newark City Hospital; attending cranial surgeon and consultant to numerous New Jersey hospitals; ophthalmologist and otologist in Newark and Morristown hospitals.

Subject: "Suppurative Meningitis from the Ear and Nose."

EINHORN, MAX, M.D., New York City. Professor of gastroenterology, New York Post-Graduate Medical School.

Subject: "On the Treatment of Peptic Ulcers (Medical and Surgical)."

ENLOE, D. C., M.D., F.A.C.S., Sherman, Texas. President of staff, Wilson N. Jones Hospital; surgeon, The Stout Clinic.

Subjects: (1) "Peritonitis" (with special reference to ruptured appendices and the instillation of sulfanilamide into the peritoneal cavity). (2) "Spinal Anesthesia" (with special discussion of Lemmon's method of continuous spinal anesthesia).

ETTLESON, ABRAHAM, M.D., Chicago, Illinois. Affiliations to be announced later.

Subject: "A New Surgical Approach to the Trigeminal Sensory Root."

FAY, TEMPLE, B.S., M.D., F.A.C.S., F.I.C.S., Philadelphia, Pennsylvania. Professor of neurology and neurosurgery, Temple University; active consulting neurosurgeon, Philadelphia General and Temple University Hospitals.

Subject: "Spinal Cord Localization and Cerebral Problems."

GOLDEN, BENJAMIN I., A.M., M.D., F.A.C.S., F.I.C.S., Elkins, West Virginia. Treasurer, United States Chapter, International College of Surgeons; director, Golden Clinic and Davis Memorial Hospital; surgeon-in-charge, Davis Memorial Hospital.

Subject: "The Present-Day Status of Chemotherapy in Surgery, with Special Reference to Abdominal Surgery."

HALL, CUSTIS LEE, M.D., F.A.C.S., F.I.C.S., Washington, D. C. Clinical professor of surgery, George Washington University; orthopedic surgeon, associate orthopedic surgeon and consultant orthopedic surgeon to numerous hospitals.

Subject: "Series of Cases of Ewing's Tumor in Children."

HUTTON, JAMES H., M.D., F.A.C.S., Chicago, Illinois. Past-President, Chicago Medical Society.

Subject: "Medical *vs.* Surgical Treatment of Essential Hypertension" (with lantern slides).

JACKSON, CHEVALIER L., A.B., M.D., M.Sc. (Med.), F.A.C.S., F.I.C.S., Philadelphia, Pennsylvania. National regent, bronchoscopy, International College of Surgeons; professor of broncho-esophagology, Temple University; assistant professor of bronchoscopy and laryngeal surgery, Pennsylvania Graduate School; bronchoscopist, Temple University and Chestnut Hills Hospitals.

Subject: "Surgical Treatment of Cancer of the Larynx."

JAEGER, JAMES R., M.D., F.I.C.S., Denver, Colorado. Professor of surgery, University of Colorado School of Medicine and Hospital; chief of the neurosurgical departments, Presbyterian, Children's and Denver General Hospitals; neurosurgeon, Fitzsimmons General Hospital, United States Army, Denver.

Subject: "Operative Mortality of Tumors of the Cranial Cavity."

LAPENTA, VINCENT A., M.D., F.I.C.S., Indianapolis, Indiana. Chairman of the Board of Examiners and Board of Trustees, United States Chapter, International College of Surgeons. Other affiliations to be announced later.

Subject: "Critical Review of Recent Trends in Gastric Surgery" (to be delivered in Spanish).

LEE, WILLIAM, M.D., Philadelphia, Pennsylvania.

Subject: Discussion of a paper on Peritoneoscopy.

MCNEALY, R. W., M.D., F.I.C.S., Chicago, Illinois. Senior Regent for State of Illinois, International College of Surgeons; president of surgical staff, Cook County Hospital; professor of surgery, Northwestern University.

Subject: Opening discussion on Dr. Douglass' paper.

MILLER, GEORGE I., M.D., F.I.C.S., Brooklyn, New York. Affiliations and subject to be announced later.

NOBLE, THOMAS B., Jr., M.D., F.I.C.S., Indianapolis, Indiana. Consulting staff, Indianapolis City Hospital; visiting surgeon, Methodist, St. Vincent's and Hamilton County Hospitals.

Subject: "The Place of Plication in the Treatment of Peritonitis" (illustrated with lantern slides).

NOVAK, EMIL, M.D., Baltimore, Maryland. Affiliations and subject to be announced later.

ROMÁN, DESIDERIO, A.M., M.D., D.Sc., F.A.C.S., F.I.C.S., Philadelphia, Pennsylvania. President, United States Chapter, International College of Surgeons; surgeon-in-chief, St. Luke's and Children's Medical Center; professor of clinical surgery, Hahnemann Medical College; consulting surgeon, Wilmington (Delaware) Memorial Hospital.

Subject: To be announced later.

SAMMONS, W. P., M.D., F.A.C.S., F.I.C.S., Wheeling, West Virginia. Member of staff, Wheeling and Ohio Valley General Hospitals.

Subject: "Compressed Fracture of the Spine."

SAWYER, KENNETH C., M.D., Denver, Colorado. Affiliations and subject to be announced later.

SMITH, ARTHUR LAWRENCE, A.M., M.D., F.A.C.S., Lincoln, Nebraska. Chief of department of medicine, St. Elizabeth's Hospital; consultant in heart diseases, Lincoln Municipal Clinic; member, Lincoln Advisory Health Board.

Subject: "Changes in the Heart During Operation with Local, Splanchnic, General and Spinal Anesthetics" (illustrated with stethograms, electrocardiograms and the reproduced heart sounds).

THOREK, MAX, M.D., F.I.C.S., Chicago, Illinois. Professor of surgery, Cook County Post-Graduate School of Medicine; attending surgeon, Cook County Hospital; surgeon-in-chief, American Hospital of Chicago; consulting surgeon, Municipal Tuberculosis Sanitarium; member of the Surgeons' Society of Paris, the Royal Academy of Medicine of Turin, the Surgical Society of Madrid, the International Society of Gastroenterology and many others.

Subject: "Tubovalvular Gastrostomy" (with motion pictures).

URRUTIA, AURELIANO, B.A., B.S., M.D., F.A.C.S., F.I.C.S., San Antonio, Texas. Surgical staff, Santa Rosa Hospital.

Subjects: (1) "Thirty Years of Panhysterectomy" (1,000 cases operated on with the same technic, without any clamps; films). (2) "Surgical Treatment of Certain Deformities" (lantern slides and film taken at Santa Rosa Hospital).

VOLINI, ITALO F., M.D., F.A.C.P., Chicago, Illinois. Professor and head of department of medicine, Loyola University; vice-president and attending physician, Cook County Hospital; chairman, department of medicine, Mercy Hospital and Loyola Clinics; chairman, Pneumonia Control Commission.

Subject: "Empyema Thoracis Complicating Pneumococcus Pneumonia: A Medical and Surgical Analysis."

Dr. John Peffer and Dr. Hugh O'Neil, associates, assisting.

WOLFE, OTIS I., M.D., F.I.C.S., Marshalltown, Iowa. Chief surgeon, department of ophthalmology, Deaconess Hospital.

Subject: "The Barraquer Operation for Incipient Cataract and Glaucoma" (based on personal instruction by Dr. Barraquer in Spain and over seventeen years of practice, covering about 3,000 cases).

Palace of Fine Arts, Mexico, D. F. In this luxurious theatre, considered the most beautiful in all America, will be held the solemn ceremony of inauguration of the International Assembly.

TRANSPORTATION SCHEDULE

Assembly of the International College of Surgeons

Mexico City, August 10-14

The following train schedules from various eastern points are suggested for members of the International College of Surgeons, their families and friends. These schedules are arranged to insure connection with the Special DeLuxe Train at either Chicago, St. Louis or San Antonio. It appears that there will be a sufficient number of reservations from various eastern points to secure private Pullman cars for the exclusive use of members and their friends. These cars will be attached to the Special DeLuxe Train en route, at either Chicago or St. Louis.

New York Central Railroad via Chicago

Lv. New York City	4:30 P.M.,	Aug. 5
Lv. Albany	7:09 P.M.,	Aug. 5
Lv. Syracuse	9:59 P.M.,	Aug. 5
Lv. Rochester	11:21 P.M.,	Aug. 5
Lv. Buffalo	12:25 A.M.,	Aug. 6
Ar. Chicago	8:30 A.M.,	Aug. 6

Pennsylvania Railroad via Chicago

Lv. New York City	2:45 P.M.,	Aug. 5
Lv. Newark	3:00 P.M.,	Aug. 5
Lv. N. Philadelphia	4:13 P.M.,	Aug. 5
Lv. Harrisburg	6:13 P.M.,	Aug. 5
Lv. Pittsburgh	11:59 P.M.,	Aug. 5
Ar. Chicago	7:45 A.M.,	Aug. 6

Members from Washington and Baltimore would join this train at Harrisburg, leaving Washington via the Pennsylvania Railroad at 1:50 P.M. and Baltimore at 2:35 P.M.

New York Central Railroad via St. Louis

Lv. New York City	8:00 P.M.,	Aug. 5
Lv. Boston	5:30 P.M.,	Aug. 5
Lv. Albany	10:45 P.M.,	Aug. 5
Lv. Syracuse	1:16 A.M.,	Aug. 6
Lv. Cleveland	7:37 A.M.,	Aug. 6
Lv. Indianapolis	11:55 A.M.,	Aug. 6
Lv. Terre Haute	1:15 P.M.,	Aug. 6
Ar. St. Louis	4:58 P.M.,	Aug. 6

Pennsylvania Railroad via St. Louis

Lv. New York City	8:35 P.M.,	Aug. 5
Lv. Newark	8:50 P.M.,	Aug. 5
Lv. N. Philadelphia	10:02 P.M.,	Aug. 5
Lv. Harrisburg	11:59 P.M.,	Aug. 5
Lv. Columbus, Ohio	9:30 A.M.,	Aug. 6
Lv. Dayton, Ohio	10:51 A.M.,	Aug. 6
Lv. Indianapolis	12:10 P.M.,	Aug. 6
Lv. Terre Haute	1:33 P.M.,	Aug. 6
Ar. St. Louis	4:45 P.M.,	Aug. 6

Baltimore and Ohio Railroad via St. Louis

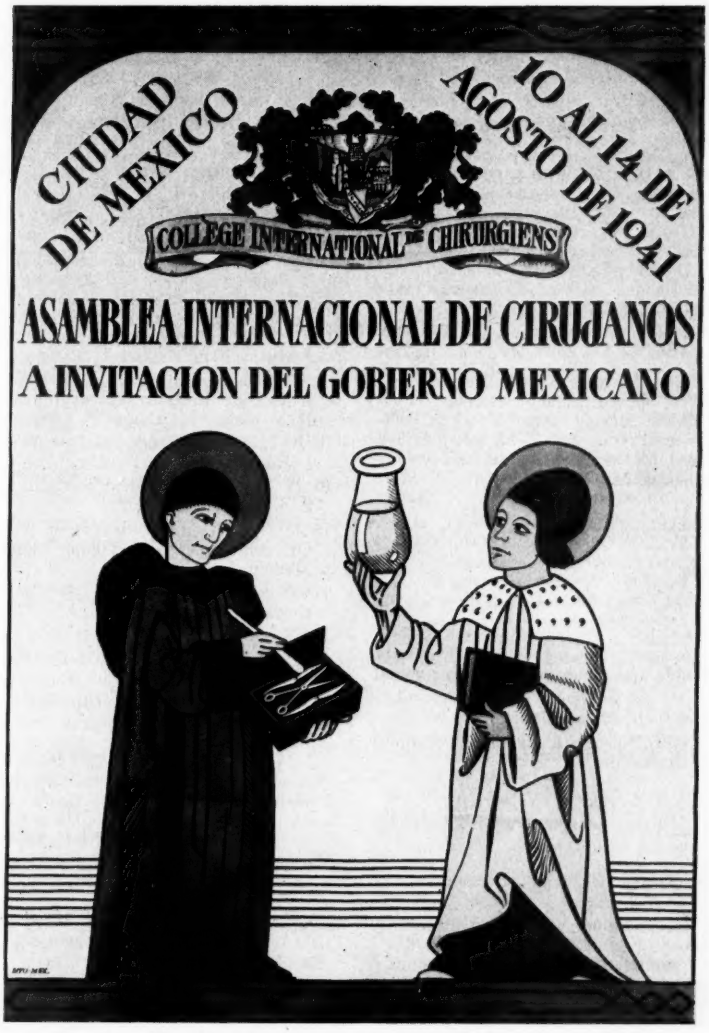
Lv. Philadelphia	5:14 P.M.,	Aug. 5
Lv. Wilmington	5:46 P.M.,	Aug. 5
Lv. Baltimore	7:12 P.M.,	Aug. 5
Lv. Washington, D. C.	8:20 P.M.,	Aug. 5
Lv. Cincinnati	9:50 A.M.,	Aug. 6
Lv. Vincennes, Ind.	1:18 P.M.,	Aug. 6
Ar. St. Louis	4:50 P.M.,	Aug. 6

Special DeLuxe Train

Lv. Chicago via Wabash Ry.	11:40 A.M.,	Aug. 6
Ar. St. Louis via Wabash Ry.	5:10 P.M.,	Aug. 6
Lv. St. Louis via Mo. Pac. Ry.	5:30 P.M.,	Aug. 6
Ar. San Antonio via Mo. Pac. Ry.	4:45 P.M.,	Aug. 7
Lv. San Antonio via Mo. Pac. Ry.	4:45 P.M.,	Aug. 7
Ar. Laredo via Mo. Pac. Ry.	8:50 P.M.,	Aug. 7
Ar. Monterrey via Nat. Rys.	7:35 A.M.,	Aug. 8
Ar. Saltillo via Nat. Rys.	11:00 A.M.,	Aug. 8
Ar. San Luis Potosi via Nat. Rys.	7:10 P.M.,	Aug. 8
Ar. Mexico City via Nat. Rys.	7:35 A.M.,	Aug. 9

SPECIAL ASSEMBLY TRAINS

Reservations for travel and hotel accommodations should be made promptly by those planning to attend the International Assembly at Mexico City. Special trains will leave New York City and will stop at Chicago, St. Louis, San Antonio and other points.


CIUDAD DE MEXICO
10 AL 14 DE AGOSTO DE 1941
COLLEGE INTERNATIONAL DES CHIRURGIENS
ASAMBLEA INTERNACIONAL DE CIRUJANOS
A INVITACION DEL GOBIERNO MEXICANO

The above illustrates the cover page of the first book on surgery printed on the American continent. It appeared in *Suma y Recopilacion de Chirurgia, con un Arte Para Sagrar Muy Util y Provechosa.* Alonzo Lopez, who was born in Inojosos, was surgeon and practitioner of the Hospital of St. Joseph of the Indians, of the already celebrated city of Mexico. The work was dedicated to the illustrious Don P. Moya de Contreras, Archbishop of Mexico and of the Council of his Majesty. The title of the book preserves the autography of the original manuscript. The work was published by Antonio Ricarco in 1578. Santos y Damian, to whom is attributed the first human grafting operation, was looked upon in ancient times as a saint. Jacobo de Voragine is represented relating that the guardian of the old Basilica of San Cosme and San Damian, in Rome, had one limb rendered useless by cancer. The legend further relates that the two saints appeared to the sick man and consulted about his condition. San Cosme expressed the opinion that the leg should be amputated, and proposed a search for another to replace it. San Damian then recalled that on the same date a Moor had been buried in the cemetery of San Pedro at Vincola, and suggested that they take one of the Moor's limbs and transplant it. And this, the legendary story goes, was accomplished.

GUILD ACTIVITIES

POST GRADUATE STUDY GUILD, UNITED STATES CHAPTER

DIRECTOR
DESIDERIO ROMAN, M.D.
250 South Seventeenth Street
PHILADELPHIA, PA.

DIRECTOR EASTERN STATES
GEORGE S. FOSTER, M.D.
925 Chestnut Street
MANCHESTER, N. H.

DIRECTOR WESTERN STATES
CHAS. H. ARNOLD, M.D.
Terminal Building
LINCOLN, NEBRASKA

DIRECTOR NORTHWESTERN STATES
JAMES C. MacGREGOR, M.D.
Medical Arts Building
GREAT FALLS, MONTANA

Colorado Guild Meeting

The Colorado Guild Meeting of the International College of Surgeons opened Sunday evening, April 27, 1941, at 6:30 at the Shirley Savoy Hotel in Denver. This first meeting consisted of a get-together dinner, followed by talks on non-scientific subjects by some of the guest speakers.

PROGRAM OF ACTIVITIES, MONDAY, 8 A.M. to NOON

8 A.M. Registration.

Room 2, Dr. Hamilton I. Barnard

8-9 A.M. Operative clinic: Arthrotomy of the knee.

9 A.M.-12 NOON. Presentation of cases: Arthroplasty of the knee; double arthrotomy of the knee; spinal fusion.

Room 4, Dr. Henry Buchtel

8-10 A.M. Transurethral prostatic resection; demonstration of tidal irrigation.

Room 4, Dr. George F. Netherton

10 A.M.-12 NOON. Multiple uterine fibroids; hysterectomy.

Room 5, Drs. George B. Kent and Kenneth C. Sawyer

8 A.M.-12 NOON. Exophthalmic goiter complicated by diabetes mellitus; partial thyroidectomy. Toxic nodular goiter; partial thyroidectomy. Presentation of cases: Exophthalmic goiter with extremely high basal metabolic rate; reconstruction of the common bile duct; ruptured duodenal ulcer.

Room 6, Motion Picture Program

8:00 Thyroglossal cyst. The Lahey Clinic, Boston.

8:10 Hernioplasty; modified Bassini technic for the cure of indirect inguinal hernia. Dr. Mims Gage, Tulane University of Medicine.

8:30 Resection of the colon and primary end-to-end anastomosis with complementary cecostomy. Dr. Fred W. Rankin, Lexington, Kentucky.

8:55 The use of extra-fine catgut in gastrointestinal surgery. Dr. John O. Bower, Temple University of Medicine.

9:10 Tumor of the spinal cord. Dr. J. Rudolph Jaeger, Denver.

9:25 Nephrectomy for tuberculosis of the kidney. Dr. Hugh H. Young, Brady Urological Institute, Baltimore.

9:40 The application of thick split skin grafts. Dr. J. Barrett Brown, Washington University School of Medicine, St. Louis.

10:10 Compound depressed fracture of the skull. Dr. J. Rudolph Jaeger, Denver.

10:25 Transverse cervical cesarean section. Dr. Louis E. Phaneuf, Boston.

10:45 Appendectomy; inversion, nonligation technic. Dr. Alton Ochsner, Tulane University School of Medicine.

11:00 Subdural hematoma. Dr. J. Rudolph Jaeger, Denver.

11:20 Intervertebral disc. Injury (herniated nucleus pulposis). Dr. J. Rudolph Jaeger, Denver.

11:35 Vaginal repair of cystocele and rectocele. Dr. Arthur H. Curtis, Northwestern University Medical School.

Room 7, Dr. Kenneth D. A. Allen

8 A.M.-12 NOON. Bone tumors; X-ray and lantern slide demonstration.

Laboratory, Dr. P. C. Carson

Carcinoma of the thyroid gland; exhibition of gross and microscopic specimens.

East Hall, Drs. Kenneth D. A. Allen, Frank B. Stephenson and John H. Jamison

Exhibit of bone tumors.

X-Ray Laboratory, The Technical Staff

Demonstration of quick development of films.

ROUND-TABLE DISCUSSIONS

Dr. Hamilton I. Barnard officiated as moderator at the round-table discussion. He called for questions relating to Dr. Henry Buchtel's operation, transurethral resection of the prostate.

Dr. Arnold: Is there any difficulty in removing enough of the urethral portion of the prostate, and yet not destroying or injuring the sphincter?

Dr. Buchtel: The amount of tissue which should be removed depends on the age of the patient. If the resection is done down to the external sphincter, one is liable to injure the sphincter. This is not serious in young men, as the muscles have better tone. In older patients, especially those over eighty, it is best not to resect close to the sphincter. It is unnecessary in a man of this age, as the only reason for taking out the

entire prostate is to prevent recurrence. In an older man this is not needed, as he will probably not live long enough to have a recurrence of the trouble.

Dr. Kent: There is much talk about hormone therapy in these cases. Will you enlighten us?

Dr. Buchtel: The belief is that hypertrophy of the prostate is due to hormone change. This has not been proved. Many hormones have been tried, without much success. The newest one to be used is stilbestrol. Experimenters have had some discouraging results, but they probably used it in the wrong type of case. It might be tried on people who are up and around. It has helped many patients, but it does not keep them well. I usually start them off with ½ mg. a day to see how they tolerate it, then increase the dose to 1 mg. a day. They all say they feel better and are able to void easier. However, I have seen no diminution in the size of the prostate.

Dr. Nesbit: Then you believe the drug should be used for hypertrophy?

Dr. Buchtel: Yes.

Dr. Barnard then called for a discussion on Dr. Netherton's hysterectomy demonstration.

Dr. Shivers: Which is the better method in the tuberculous patient, X-ray or surgery?

Dr. Netherton: I have not had much experience with tuberculous patients, but I believe I would do a surgical procedure. The patient this morning was a woman forty-nine years of age. She had a small uterus with diffuse fibrosis throughout, and profuse bleeding. She had to go to bed two or three days every month, and yet would bleed so much she would faint. On opening the abdomen the uterus was found to be small, and on examination it was found to be adenofibromatous in type. She had a brother die of carcinoma of the stomach, and she had a cancerophobia. She felt she would prefer to have the source of the bleeding removed. She had puerperal infection with her last child seven years ago. Radium or X-ray given in the face of anemia and the history of pelvic infection did not seem to be indicated. In answer to Dr. Shivers' question, I would say surgery, although I may be wrong.

Dr. Crawford: What is the incidence of surgical mumps in relation to pelvic surgery? I wonder if there is any new concept as to the cause for the development of surgical mumps. I would like to be enlightened on that subject.

Dr. Netherton: I have had a few cases of surgical mumps, and believe they have been due to infection in the mouth. I believe if a patient is instructed in mouth hygiene before surgery, the incidence of surgical mumps will be less. If they do develop, early application of radium or X-ray will cause them to subside. Also sulfanilamide makes this condition much less serious than previously.

Dr. Jobe: In answer to Dr. Shivers' question on the tuberculous patient, I would not operate for fibroids on a patient with active tuberculosis of the lungs. The use of X-ray brings marvelous results. The patient continues to bleed for two or three months, and that is discouraging; however, in three months the fibroids have diminished and they finally disappear.

Dr. Netherton: I misunderstood the question; I thought Dr. Shivers meant would I operate if a tuberculous condition existed in the abdomen. Careful surgery would be indicated in tuberculosis of the abdomen. Oftentimes opening the abdomen and letting in air will cure the condition.

Dr. Gillen: I have had a few cases of surgical mumps, and it is my conclusion that it is more or less associated with the hygienic condition of the mouth. In regard to Dr. Netherton's case, I think a person forty-nine years old, in the condition he has described, and if there is no contraindication, should certainly be operated upon.

Dr. Barnard then called for discussion on the partial thyroidectomy done by Dr. George B. Kent and Dr. Kenneth C. Sawyer.

Dr. Netherton: What experience have you had in preoperative iodine determination, in relation to the prognosis of the case and in relation to the return of hyperthyroidism?

Dr. Kent: If there is an elevated iodine level preoperatively, the chances of recurrence are less than if there is a normal or low blood iodine.

Dr. Netherton: That can be explained by the fact that in preoperative hyperthyroidism the iodine may return to normal before operation.

Dr. Thorek: Just an observation. This seminar is primarily intended for the younger surgeon. In watching Dr. Kent, one concludes that he is a very dangerous surgeon for the younger man who will conclude that everything is quite easy; but it is not quite so easy. I would counsel that before one masters the surgery of the thyroid, particularly in the beginning of his career, he should first of all decide whether he wishes to divide the muscles high up, or follow the precept practiced by Dr. Kent of straight incision in the midline and retraction. This can be done routinely by the experienced, and should not be attempted by the inexperienced. The second comment I wish to make is that the field of operation this morning was conspicuously free from blood. This is attributable to the mastery of the principles of hemostasis. I would like to congratulate Dr. Kent for his masterly demonstration this morning.

Dr. Sawyer: Why do you spend so much time cleaning the superior pole when doing a thyroidectomy?

Dr. Kent: The reasons are: To clean off the muscle, to avoid injury to the high-lying parathyroid gland, to get the vessels of the pole clean and free so as to cut down on the likelihood of the ligature's slipping off the superior thyroid artery, and, what is most important, to do a complete operation. We have long known that the superior pole is the most common site of recurrence.

Dr. Arnold: Some surgeons say that you can see the parathyroids, and others say that you cannot see them. Do you look for the parathyroids, or do you just stay away from them?

Dr. Kent: Exposure of the parathyroids is an altogether different operation. In these cases one usually has a smaller-sized thyroid gland, and one must have an absolutely bloodless field. We never look for the parathyroids in a thyroidectomy, and I do not believe it is necessary.

Dr. Jobe: At the Lahey Clinic the younger men are showing the recurrent laryngeal nerve. I had the pleasure of observing there, and of having the recurrent laryngeal nerve demonstrated to me. It is not hard to do, and it can be traced to where it goes be-

hind or anterior to the inferior thyroid. If you follow the branches you will find the lower parathyroid. However, it is certainly hard to find the upper parathyroid.

Dr. Kent: Yes, it is easy to find the nerve, but I am inclined to believe that if you look for it and demonstrate it routinely, you will probably have a good many patients with tracheotomy tubes in their throats. It is not necessary, for when you pull the capsule back the recurrent laryngeal nerve is carried back with it. I think it is a dangerous procedure for any man to try to do routinely.

Dr. Thorek: I want to stress what Dr. Kent says. There should be a reason for every surgical step. Why expose the recurrent laryngeal nerve when you are trying to avoid it? It is unnecessary and entirely unsurgical to expose important structures unless definitely indicated.

Dr. Jobe: I was impressed with the men at Lahey's. It is a dangerous maneuver, but they do it very deftly. They do not pick it up; they just point to it. I do not think it is necessary to expose it entirely.

Dr. Netherton: I never expose the recurrent laryngeal nerve. By exposing this nerve you are liable to create scar tissue.

Dr. Jaeger: This morning when I showed the movies of the herniated intervertebral disc, where a fragment was removed, I made the remark that in order to protect that nerve I attempted to leave it in as nearly normal an anatomical position as possible. I think if you look at any nerve as it runs through its anatomical parts, you will notice practically every nerve is well padded with fat. The neurosurgeon has learned that this protective pad is a physiological protection. Anytime you remove it and get even a small amount of hemorrhage, you are going to have scar formation and adhesions and traumatic neuritis. I am sure that is true of all nerves. The more neurosurgery I do, the less often I recommend exploring traumatized nerve trunks. I should feel, from a neurological point of view, that uncovering the nerve would be hazardous.

Dr. Bunten: I was trained as a neurosurgeon at Rochester. I then moved to Detroit and there practiced neurosurgery. While there a case came under my observation. It was published under the title "Neurolysis of a Facial Nerve After Ten Years' Inclusion Within the Scar Tissue; Operation with Returning Function." In doing a mastoid operation, the surgeon had made his incision a little too low. After the operation the child lost the function on that side of the seventh nerve. It remained that way for ten years. In testing out the function of the nerve, we felt there was some function, and that the nerve probably was not divided. So we explored and found it reduced to the size of a thread for the distance of one-half inch. The nerve was not injured in any other way, but had been pulled to make it of this diameter. The previous operation had destroyed the normal protective structures and had formed scar tissue. Six months following this second operation the child was able to use that side of the face. I agree that it is best not to expose the recurrent laryngeal nerve. If you operate and stay definitely in the capsule, there is no need for nerve exposure.

Dr. Stuck: I would like to give one more case to prove this point. This refers to the popliteal nerve. A patient of mine had a small tumor on it which had limited the movement in her toes. After very careful dissection of the tumor, the patient was able to move the toes as soon as she awakened. We must deal gently with nerve tissue.

Dr. Barnard announced that questions relating to his operation, arthroplasty of the knee, would be answered by Dr. Albee.

Dr. Bancroft: Why do some patients get relief from sacroiliac pain by manipulation?

Dr. Albee: I believe that sacroiliac cases, low back pain caused by myofascitis, are due to old adhesions. This is why the chiropractors are flourishing. They break up these adhesions in their manipulations.

Dr. Haig: If an injury is present, why is it that the patient will often get relief from a chiropractor immediately?

Dr. Albee: That depends on what the injury was. Myofascitis can develop for months without any symptoms, then a person can reach for something or pick up something, and immediately be seized with pain. That is the myofascitis coming to the fore, not an injury.

Dr. Grimm: Do you often use a sacroiliac belt?

Dr. Albee: I have failed to find a method of sacroiliac relaxation that is satisfactory. This myofascitis, a word I coined myself, often cannot be aided by a belt. However, I often do recommend a belt, together with good massage.

AFTERNOON SESSION

The afternoon session, which was presided over by Dr. George H. Gillen, opened with Dr. Thorek's presentation of "Electro-Surgical Obliteration of the Gallbladder as a Means of Reducing Mortality—A Report of 1,117 Cases." Dr. Thorek presented this operation, which he originated, in contrast to the classical method of cholecystectomy. The mortality in the classical type of operation is often as high as ten per cent, while the mortality in the Thorek operation is one-third of one per cent. The evil effects of drainage required by the classical method were stressed, in contrast to the fact that no drainage is required when the gallbladder is obliterated by electrosurgical means.

The second speaker of the afternoon was Dr. Fred H. Albee, who spoke on "Arthroplasty of the Elbow" and "Arthroplasty of the Knee," illustrating both procedures with motion pictures. He listed those conditions which were favorable and those which were unfavorable to arthroplasty, and showed motion pictures of patients who had recovered from their stiff joints and were able to use them freely.

At 4 P.M. Dr. Frank I. Terrill spoke on "Trends in Thoracic Surgery" and showed a number of illustrative slides. He spoke first of the surgery necessary in tuberculosis, then of that required in bronchiectasis and in bronchogenic carcinoma.

Dr. Charles H. Arnold closed the afternoon meeting with a talk on "Splanchnic Anesthesia." Doctors are still searching for the ideal anesthesia, and although remarkable advancement has been made in anesthesia, there is still much to be desired. Splanchnic anesthesia is very satisfactory for use in certain types of operation, particularly in surgery of the upper abdomen, and especially in operations on older people. It tends to eliminate pulmonary complications, strain on the kidneys, acidosis and the undesirable period of narcosis. Dr. Arnold then described the methods of producing splanchnic anesthesia.

EVENING SESSION

After a buffet supper at 6:30, the evening meeting opened with an enjoyable program by Dr. Bunten (F.A.C.S., F.I.C.S.) of Cheyenne, who is a gifted vocalist. Dr. H. A. Black of Pueblo presided. Before presenting the speakers, he thanked the Denver men for their efforts in arranging the meeting, and reminded the audience of the meeting to be held in Mexico City at the invitation of the Mexican government. Dr. George S. Foster then spoke on "Cancer: Where Are We Going?" He stated that he selected this subject because he lives in the cancer nest of the world, New England. There is a higher cancer incidence there than any other place; 10 per cent of all cancer of the United States is in New England, which has only one-fifteenth of the population. Therefore, there is 50 per cent more cancer in New England than in other parts of the country.

The last speaker was Dr. Albee, who talked on "The Bio-Physiological Considerations in the Treatment of Ununited Fractures." He spoke of experiments wherein it was impossible to keep the fractures of a laboratory animal from healing. He stressed the desirability of using a living bone peg in place of a nail or wire to hold an ununited fracture in place, illustrating by a motion picture the method he has developed of making these living bone pegs and inserting them into the ununited fracture.

An approximate total of three hundred men attended the various meetings.

Southern California Guild Meeting

The first Post Graduate Assembly of the Southern California Chapter of the International College of Surgeons was held at Los Angeles April 21 and 22. Dr. J. David Beatty is president of the Southern California Chapter and Dr. Alfred E. Gallant is secretary.

The meeting on Monday, April 21, was held in the auditorium of the Queen of Angels Hospital from 2 to 5 P.M. After introductory remarks by Dr. J. David Beatty, president, and Dr. George S. Foster (Manchester, New Hampshire), moderator, the following papers were read:

Pre- and Postoperative Care in Gastric Surgery, Drs. Walter J. Holleran and J. Reagan.

Osteomata of the Skull (lantern slides), Dr. Gilbert Roy Owen.

Experiences with the Use of Silk Sutures in General Surgery (lantern slides), Dr. Ralph Byrne.

Some Considerations in the Treatment of Hernia, Dr. Charles H. Arnold, Lincoln, Nebraska.

A New Method of Mastopexy (motion pictures), Dr. Josif Ginsburg.

Schaul Therapy of Bladder Tumors (motion pictures), Dr. Eugene Hoffman.

A paper by Dr. Fred H. Albee.

The Choice of Anesthetic Agent and Method of Application, Drs. Charles F. McCuskey and Ernest H. Warnock.

The morning meeting on Tuesday, April 22, was held from 9 A.M. to 12 noon in Ward 3000, Los Angeles General Hospital, Unit 1. Ward rounds were followed by presentation of cases and a dry clinic. Dr. Fred H. Albee acted as moderator.

The afternoon session, 2 to 5 P.M., was again held in the auditorium of the Queen of Angels Hospital, Dr. Charles H. Arnold acting as moderator. Papers were presented on the following subjects:

Space-Occupying Lesions About the Spinal Canal and Their Relation to Low Back and Sciatic Pains (motion pictures), Dr. Rupert Raney.

Differential Diagnosis of Spinal Cord Tumors in Relation to Internal Medicine, Dr. Leo J. Adelstein.

Uterine Malignancies; Fundus vs. Cervix, Dr. Wilburn Smith.

Cancer. Where Are We Going? Dr. George S. Foster.

Geriatric Surgery. Dr. E. Forrest Boyd.

Paper by Dr. J. Madison Greer (Phoenix, Arizona).

Some Thoughts in Relation to Peripheral Vascular Diseases, Dr. Leo M. Burger.

History and Aims of the International College of Surgeons. Remarks by Drs. Foster and Arnold. Closing remarks by Dr. Albee.

A dinner meeting concluded the program.

Montana Guild Meeting

The second meeting of the Montana Guild of the International College of Surgeons was held at Great Falls on April 25 and 26 with Drs. Albee, Arnold and Foster as guest surgeons. The meeting was attended by forty-nine surgeons from Montana and other nearby states.

The executive session of the Montana Study Guild was held on the afternoon of April 25 and resulted in the adoption of a constitution and by-laws in conformity with the constitution and by-laws of the United States Chapter of the International College of Surgeons. Elections were held in which Dr. C. H. Fredrickson of Missoula was named president, Dr. John R. Vasko of Great Falls vice-president, and Dr. J. C. MacGregor of Great Falls secretary-treasurer. Following the meeting golf was enjoyed and, later, dinner at the Country Club. After dinner Dr. C. H. Fredrickson gave a very masterful address on "The Surgeon in the Defense Program." This was followed by a social evening at the Hotel Rainbow.

The scientific session opened on the morning of April 26 at the Columbus Hospital. Operations were performed by Drs. Albee and Arnold and several local surgeons. Of particular interest was the arthroplasty demonstrated by Dr. Albee on a patient who had hitch-hiked from Oregon to attend Dr. Albee's clinic. He also operated on an old ununited fracture of a hip, with favorable prognosis.

Dr. C. H. Arnold's demonstration of fascial transplants in an inguinal hernia operation was viewed with much favorable comment. During the morning clinics, the hospital served coffee and refreshments.

Luncheon at the Hotel Rainbow was followed by free discussion of the morning surgery. At 2 P.M. a dry clinic was conducted by Dr. Albee. An overabundance of material had been assembled from all parts of Montana. Much appreciation was expressed

for the untiring efforts of Dr. Albee and the clear manner in which he presented the cases. Following the clinic, Dr. George S. Foster of Manchester, New Hampshire, gave an interesting discussion on cancer.

At 6 P.M. a banquet was held at the Hotel Rainbow. Drs. Albee, Arnold and Foster responded to toasts of toastmaster Fred Attix. The banquet was concluded with the initiation of Dr. Albee into the Montana Order of Cowboys and he was presented with the usual emblem. The meeting was from every point of view a great success.

Nebraska Guild Meeting

The third annual meeting of the Nebraska Guild was held in Lincoln on April 30.

Dr. Fred H. Albee of New York City, Dr. J. Rudolph Jaeger of Denver, Colorado, Dr. E. C. Henry of Omaha, president of the Nebraska Guild, and Dr. George S. Foster of Manchester, New Hampshire, took an active part in the program. Dr. Harry H. Everett of Lincoln was general chairman.

During the forenoon operative clinics and scientific demonstrations were held in four operating rooms and two delivery rooms at Saint Elizabeth's Hospital. Dr. Albee operated on an ununited fracture of the tibia, demonstrating his bone graft operation. Luncheon was served at the hospital.

The afternoon was devoted to discussions by guest surgeons. Dry clinics were well attended. Dr. Henry led the discussion on the operative work of the morning and Drs. Jaeger, Albee and Everett gave very interesting analyses of cases presented.

The dinner at the Cornhusker Hotel was attended by sixty-five surgeons. Immediately following, a meeting was held in the Lancaster County Medical Society Auditorium, to which the members of the Lancaster County Medical Society were invited. Dr. Jaeger presented colored motion pictures with a discussion of treatment of head injuries, and Dr. Albee presented colored motion pictures and a lecture on ununited fractures.

A total of about one hundred and twenty-five attended the meetings.

INTERNATIONAL ASSEMBLY IN MEXICO

BY INVITATION OF THE MEXICAN GOVERNMENT

Members, Fellows, their families and friends who are contemplating traveling to Mexico for the next International Assembly, to be held in Mexico City, Mexico, from August 10 to 14, 1941, may obtain information about transportation facilities, special Assembly train arrangements, etc., by addressing Dr. Max Thorek, International Secretary of the International College of Surgeons, 850 West Irving Park Blvd., Chicago, Illinois.

NEWS ITEMS

Newly Elected Secretary of the Scientific Assembly

Dr. George Hamilton Gillen of Denver, Colorado, was elected secretary of the Scientific Assembly of the United States Chapter of the International College of Surgeons at the meeting of the Executive Council of the United States Chapter held in Philadelphia on May 24 and 25. This important post has been held until now by the indefatigable Dr. Charles H. Arnold of Lincoln, Nebraska, who was unanimously elected Executive Secretary of the United States Chapter of the International College of Surgeons. The tremendous amount of work which Dr. Arnold is doing in his capacity of Executive Secretary of the Chapter created the necessity of relieving him of the burdens of the secretaryship of the Scientific Assembly, in itself an undertaking entailing much responsibility.

George Hamilton Gillen was born in 1892 and graduated from the Vanderbilt University School of Medicine in 1915. His practice is entirely limited to surgery. He is a Fellow of the American College of Surgeons and of the International College of Surgeons.

Dr. Gillen, besides being an excellent surgeon, has endeared himself to many friends by his genial personality and admirable character. He is attending surgeon at St. Luke's Hospital, Denver, and on the associate staff of the Children's Hospital and Presbyterian Hospital of the same city. He was chairman of the mid-winter Postgraduate Clinic of the Colorado State Medical Society and chairman of the program committee of the Guild Meeting of the International College of Surgeons recently held in Denver. He was also a delegate to the meeting of the Colorado State Medical Society. He is endowed with proved and mature executive ability.

Besides his professional activities, his work in civic activities is notable. He is chairman of the Health and Safety Committee of the Boy Scouts of America (Denver chapter), chairman of the Committee for the Aid of Underprivileged Children, Kiwanis of Denver and other worthwhile organizations.

With his election, the United States Chapter feels assured of a worthy successor to the retiring dynamic incumbent.

GEORGE H. GILLEN, M.D., F.A.C.S., F.I.C.S.

Dr. Wilbur Resigns as President of Stanford University

Dr. Ray Lyman Wilbur, who observed his twenty-fifth anniversary as president of Stanford University on January 19, will retire at the close of the present academic year. Dr. Wilbur became president of Stanford in 1916, having previously been professor of medicine and dean of the Medical School.

Dr. Wangensteen Awarded $1,000 Prize

The John Scott Medal and the sum of $1,000, given by the City of Philadelphia for "outstanding achievement in medical science," has been awarded to Dr. Owen H. Wangensteen, professor of surgery and head of that department, University of Minnesota Medical School, in recognition of his work in the development of a suction siphonage treatment of acute intestinal obstruction.

Dr. Conant Returns from London

Dr. James Bryant Conant, president of Harvard University, returned on April 15 after two months in England as head of the mission sent by President Roosevelt to make "first-hand observations of recent English scientific research and experience." While in England, he received the degree of doctor of science from the University of Oxford and was entertained at a luncheon given at Burlington House by the president and fellows of the Royal Society.

During his visit, Dr. Conant was made freeman of Southwark, where John Harvard, founder of the university, was born, in recognition of "his eminent work as president of Harvard; his leadership in the United States of America in the cause of liberty and justice, and the invaluable assistance rendered by him to the British Empire while engaged in defending the cause of freedom."

Polish Medical School in London

The *London Times* states that the University of Edinburgh has established a Polish School of Medicine. This will be staffed by professors and teachers now serving with the Polish Army in Great Britain and by professors of the university faculty of medicine in such subjects as may not be represented among the Polish professors. A statement issued by the university reads in part: "The Polish Forces in this country include a considerable number of medical officers of whom many are men of high academic standing who have held important teaching and research appointments in Poland. In addition, there are other medical graduates of Polish universities who have lost for the present almost all opportunities of maintaining the standards of their professional skill. There are also numbers of Polish medical undergraduates in this country, and the value of their studies will be seriously affected unless something is done to mitigate the unfortunate situation in which these men now find themselves."

Physicians' Art Club Exhibit

The fourteenth annual exhibition of the New York Physicians' Art Club will open April 26 at 6 East Fifty-seventh St., Manhattan, under the auspices and for the benefit of the British War Relief Society, Medical Aid Department. This is the first time that the New York Physicians' Art Club has given an exhibition as a benefit, and it is expected that the worthy cause will result in greater participation than ever by the members and visitors. On the opening night there will be a reception with speakers, Scotch pipers and refreshments, with a preview for the press and invited guests. Pictures and sculpture marked for donation will be auctioned at the close of the exhibition for the benefit of the British War Relief Society. Works previously exhibited may be submitted, and the usual limitation to four has been waived for this occasion. Dr. Percy Fridenberg is secretary-treasurer of the club.

Board on Blood and Blood Substitutes

An Advisory Board on Blood and Blood Substitutes has been established by the Committee of Revision and the Board of Trustees of the Pharmacopoeia of the United States to cooperate with and report through the Sub-Committee on Biological Assays. This board is made up of the following members: Dr. Perrin H. Long, Johns Hopkins University Medical School; Dr. Sidney O. Levinson, Michael Reese Hospital, Chicago; Dr. C. P. Rhoads, Memorial Hospital, New York City; and Dr. Max M. Strumia, Bryn Mawr Hospital.

Child Surgery at Harvard

Dr. William E. Ladd, clinical professor of surgery at Harvard Medical School and chief of surgical services at the Children's Hospital, Boston, has been appointed the first William E. Ladd professor of surgery, a chair which has been permanently endowed by his friends and associates. This is the first Harvard professorship devoted exclusively to child surgery.

$16,000 in Awards to 4 Scientists

The American Academy of Arts and Sciences announces the first award of the septennial prize of the Amory Fund to four scientists for their contributions to the treatment and cure of diseases of the genitourinary system. The recipients are Dr. Joseph F. McCarthy, professor of urology, New York Polyclinic Medical School and Hospital, New York; Carl R. Moore, Ph.D., professor of zoology, University of Chicago; Dr. Hugh H. Young, professor of urology, Johns Hopkins University School of Medicine, Baltimore; and a European scientist whose name is withheld for the present because he lives in a country dominated by Nazi Germany. The prize money, which is the income from a fund established in 1912 by the late Francis Amory of Beverly, Massachusetts, amounts to nearly $16,000 and will be divided equally among the four scientists, that for the European recipient being held in trust for him in this country. The award covers contributions made since 1933. Dr. McCarthy was honored for his development of technical instrumental procedures for examination, diagnosis and treatment by way of the urethra, without external incision, of certain diseases of the bladder, prostate and related organs. Dr. Moore's investigations concerned the physiology of the male reproductive tract, especially as it is influenced by the hormonal secretions of the male sex gland. Dr. Young was cited for the operation of total prostatectomy by the perineal approach, which he devised and perfected for the relief of obstruction to the outlet of the urinary bladder caused by cancer of the prostate gland.

St. Alphonsus Hospital Dedicated

The Sisters of the Sorrowful Mother opened the new St. Alphonsus Hospital in Port Washington, Wisconsin, on April 26. At the open-house ceremony, John H. Kaiser, mayor of Port Washington, spoke and the institution was thrown open to public inspection. The formal dedicatory program consisted of an address by the Hon. Edward Gehl, governor of Wisconsin. Dr. William J. Carson, F.I.C.S., spoke on the science of surgery; other addresses were given by Dr. F. W. Lehman, president of the Washington and Ozaukee Counties Medical Association, and Rev. Peter Hildebrand, pastor of St. Mary's Catholic Church of Port Washington. The following have been appointed to the consulting staff: Dr. W. J. Carson, F.I.C.S., surgery; Dr. R. W. Roethke, F.I.C.S., obstetrics; Dr. Norbert Enzer, medicine; Dr. L. D. Smith, F.I.C.S., orthopedics; and Dr. M. G. Peterman, pediatrics.

Meetings

The National Gastroenterological Association held its sixth annual convention in New York City, April 13-16, at the Hotel Commodore, under the presidency of Dr. Anthony Bassler. Subjects discussed at round table conferences included: pathogenesis of cholelithiasis, Dr. G. M. Russell, Billings, Montana, presiding; criteria in the differential diagnosis of ulcers and carcinoma of the stomach, Dr. Robert J. Bach, Milwaukee, Wisconsin, presiding; sigmoidoscopy, Dr. Charles M. McClure, Boston, presiding; and new forms of medical therapy of ulcers of the stomach and duodenum, Dr. F. H. Voss, Kingston, New York, presiding. Dr. Henry Kendall, New York City, served as chairman of the program committee.

Dr. James B. Herrick, professor emeritus of medicine at Rush Medical College, Chicago, delivered the fifth Christian Fenger Lecture of the Institute of Medicine of Chicago and the Chicago Pathological Society at a joint meeting held on Monday evening, February 10. His subject was "Christian Fenger as I Knew Him, 1885-1902—A Study in Personality."

Dr. Nathan Smith Davis III was re-elected president of the Chicago Academy of Sciences at the eighty-fourth annual meeting on April 14. Other officers were elected as follows: Tappan Gregory, first vice-president; Dr. Verne O. Graham, second vice-president; and Alton S. Windsor, secretary. John Nash Ott, Jr., was elected a member of the Board of Trustees; Dr. Charles A. Shull, of the University of Chicago, and Dr. L. Hanford Tiffany, of Northwestern University, were elected to the Board of Scientific Governors. The speaker of the evening, Dr. A. C. Ivy, professor of physiology and pharmacology at Northwestern University Medical School, was elected an honorary member of the academy. Dr. Ivy's address was entitled, "The Gastrointestinal Hormones and Their Uses."

The Society of Medical Officers of Health, London, gave a luncheon on February 21 in honor of Surgeon-General Thomas Parran, head of the U. S. Public Health Service. Dr. F. T. H. Wood, president of the society, presided. The Lord Mayor of London, medical officers of health, and representatives of local authorities and of the Ministry of Health attended the luncheon. Dr. George Buchan, who took the chair after the luncheon, proposed the health of Dr. Parran, and Dr. Parran replied. A private luncheon was given to Dr. Parran by the British Medical Association, at which Dr. J. E. Gordon, United States liaison officer with the Ministry of Health, Dr. John R. Mote, medical adviser to the American Red Cross Committee in London, Sir Wilson Jameson, chief medical officer to the Ministry of Health, and the principal officers and officials of the association were present.

Dr. Anthony Bassler of New York City delivered an address before the Buffalo Academy of Medicine on February 26 on pathological and clinical aspects of cholecystitis.

At the annual meeting of the American Academy of Orthopedic Surgeons held in New Orleans on January 16, the following officers were elected: Dr. Carl E. Badgley, Ann Arbor, Michigan, president; Dr. Herman C. Schumm, Milwaukee, Wisconsin, vice-president; Dr. Eugene Bishop Mumford, Indianapolis, Indiana, treasurer; and Dr. Reford L. Diveley, Kansas City, Missouri, secretary.

Awards

Dr. Wendell M. Stanley of the Rockefeller Institute for Medical Research, Princeton, received the gold medal of the American Institute of the City of New York at a dinner in New York, February 6. The award was given to Dr. Stanley in recognition of his work in "crystallizing the virus of tobacco mosaic, a feat which has opened up new fields of research, given birth to new ideas about the nature of important disease-producing agents and enlarged the human understanding of life."

Dr. Catherine McFarland of Philadelphia received the ninth annual Adam P. Gimbel award for the outstanding woman of 1940. The sixty-three-year-old physician, who has been practicing for forty years, founded the Women's Clinic to study cancer control.

The Committee on Scientific Research of the American Medical Association has made grants-in-aid as follows: Everett L. Evans, Medical College of Virginia, surgical shock; E. E. Cahn-Bronner, University of Illinois College of Medicine, bacterial metabolism; H. O. Burdick, Alfred University, Alfred, N. Y., effect of desoxycorticosterone on pregnancy; M. R. Todd, University of Oregon Medical School, physiologic effects of canine distemper vaccine; Roled K. Meyer, University of Wisconsin, antihormones.

Appointments

Dr. Paul C. Bucy, assistant professor of neurosurgery at the University of Chicago, has been appointed associate professor of neurology and neurological surgery at the University of Illinois College of Medicine, Chicago. Dr. Bucy succeeded Dr. Percival Bailey as chief neurological surgeon at the University of Chicago when Dr. Bailey joined the staff of the University of Illinois in September, 1939. Both are now associated with Dr. Eric Oldberg, professor and head of the department of neurology and neurological surgery at the new Neuropsychiatric Institute which has just been completed for the University of Illinois at Chicago.

Dr. Charles Vezina, professor of clinical surgery of the faculty of medicine of Laval University, Quebec, has been appointed dean of the medical school, to succeed the late Dr. P. Calixte Dagneau.

Dr. J. M. Yoffey, lecturer in anatomy at the University College of South Wales and Monmouthshire, has been appointed to the chair of anatomy in the University of Bristol, succeeding Prof. S. E. Whitnall, who retires at the end of the current session.

Personals

Dr. Manuel A. Manzanilla, president of the Committee of Organization of the International Assembly of the International College of Surgeons, has been unanimously elected a Corresponding Academician of the Academy of Medical, Physical and Natural Sciences of Havana, Cuba. The International Council of the College congratulates Dr. Manzanilla on this well-merited honor.

Dr. Ellen C. Potter, medical director of the New Jersey Department of Institutions, and formerly Pennsylvania State Secretary of Welfare, has been elected to succeed Dr. Chevalier Jackson as president of the Woman's Medical College of Pennsylvania.

Dr. Ernst Th. von Bruecke, former professor of physiology in the University of Innsbruck, was the guest of the University of Oregon during the week of April 4 to 11. He lectured before Sigma Xi on "Fatigue and Recovery in Peripheral Nerves" and before the faculty on "Physiological Tendencies to Stabilize the Appearance of the Environment."

Dr. Herbert S. Gasser, director of the Rockefeller Institute for Medical Research, received a Doctorate of Science from the University of Wisconsin at its eighty-eighth commencement on June 23.

Prof. P. Sfameni, director of the Gynecologic Clinic of Bologna, Italy, has in conjunction with his wife donated 2,000,000 lire to the University of Bologna, with the stipulation that every five years a prize of 50,000 lire be given for the best work in obstetrics.

Prof. Herman Matti, who in 1938 succeeded the late De Quervain as director of surgical technic in Berne, Switzerland, resigned his position April 1, "for reasons of health."

Dr. Alexis Carrel arrived on March 15 in Unoccupied France, where he plans to make a study of the effect of food deficiencies on human health. He plans to remain in France for about six weeks. He will then go to Spain to continue his survey there.

Dr. William Seaman Bainbridge, treasurer of the International College of Surgeons, has been elected president of the Academy of Physical Medicine.

Correction

In the article "The Significance of Nutritional Deficiency in Pregnancy," which appeared on page 147 of the April issue of the Journal, the correct dosage of vitamin C in the minimum optimum diet of pregnancy should be 3,600 International Units.

OBITUARIES

William H. Walsh, M.D.

THE medical profession and the field of hospital administration have experienced an irreparable loss in the passing of William Henry Walsh. His great achievements in the development of hospital service during the past twenty-five years will be long remembered. His efforts as a sanitarian, a physician, a hospital administrator and consultant have been seldom equalled and never surpassed in this generation.

His services to his fellow men in times of peace were in consonance with the value and importance of his military service. He was a veteran of both the Spanish-American and the First World War. A private in the army at the turn of the century, he became Lieutenant-Colonel and Commanding Officer of Base Hospital No. 58 with the A.E.F. in Europe.

He was Chief Sanitary Officer in Manila at the beginning of the American occupation. He resigned that position to enter the field of medicine, and graduated from the Medico-Chirurgical College of Philadelphia. Upon graduation he became administrative resident of Old Blockley, and in the course of the next few years superintendent of the Contagious Hospital and the Children's Hospital in Philadelphia. He was the first full-time executive secretary of the American Hospital Association, resigning to enter military service during the World War. He was on the Surgeon-General's staff until he took command of the base hospital in Europe.

Upon his retirement from military service he entered upon a career as a hospital and sanitary consultant. His work called him to many countries in Central and South America, as well as to Canada and the United States. He was internationally recognized both as an authority on hospital construction and administration and as a sanitary expert. He was appointed executive secretary of the American Hospital Association a second time and left that position in 1928 to devote his full time to work as a hospital consultant.

He was able, conscientious and thoroughly competent. Steadfast in his friendships, kindly and considerate of his associates, he was both a leader and a teacher. His contributions to the advancement of hospital operation will endure long after the memory of his work has dimmed. Like so many other able men, his only regret was that he could not live to accomplish all the things he had planned for a busy life.

WILLIAM H. WALSH, M.D.

B. C. C.

Prof. Augusto Ducrey, discoverer of the bacillus of Ducrey, and one of the noted dermatologists on the European Continent, died December 27 in Rome at the age of eighty years.

Dr. Karl Frederik Wenckebach, since 1929 professor emeritus of medicine at the University of Vienna, and known for his pathological and clinical studies on diseases of the heart and circulatory system, died recently at the age of seventy-seven.

Dr. Claude Adelbert Burrett, president of the New York Medical College and Flower and Fifth Avenue Hospitals, died on March 3 at the age of sixty-two.

BOOK REVIEWS

Spermatozoa and Sterility, a Clinical Manual. By Abner I. Weisman, M.D. With a Foreword by Robert L. Dickinson, M.D. Price, $5.50. With 77 illustrations. New York: Paul B. Hoeber, Inc., 1941.

IN the words of Dr. Robert L. Dickinson, who wrote the Foreword to this book, the author presents an important early volume for an encyclopedia on human reproduction. Though encompassed within less than 300 pages, this is a truly encyclopedic work. Every phase of the study of semen and spermatozoa has been considered, often at too great length to be useful to the practicing physician, but extremely useful to the research worker. A bibliography of 764 references indicates the vast amount of research that went into the volume. The result is an excellent source book on human reproduction rather than a practical aid to the physician. The outstanding virtue of the work thus constitutes its major fault. There is too much in it, and the practitioner will often find himself confused in trying to correlate the innumerable and contradictory hypotheses and theories presented with so much care and detail.

The volume is nevertheless a valuable acquisition to the library of everyone interested in human reproduction, particularly in the role of the male factor. The illustrations are excellent and the typography is of the usual high Hoeber standard.

A. L. W.

Doctors and Doctors Wise and Otherwise. By Charles M. Rosser, M.D. Pp. 388, with 25 illustrations. Dallas, Texas: Mathis Van Nort & Company.

THIS brilliantly written biographical sketch recreates the past with vivid reality. Abundant light and humorous touches are colorfully interwoven with tense moments. The author touches briefly upon his early practice in rural communities and his later success in a growing city, tells of overcoming obstacles to the establishment of Baylor Medical College, graphically recites battles as a member of the Texas State Board of Health, as president of the Medical Associations of the Southwest and of the Texas State Medical Association, in an effort to promote standards of professional advancement and to prevent quacks, charlatans and cults from gaining legal status. The book contains an account of the founding of the Mayo Clinic and of the work in America of the bloodless surgeon, the great Viennese, Dr. Lorenz; minutely describes famous operations to which the writer was an eyewitness; and includes reprints concerning his own surgical achievements: "The Transplantation of the Vermiform Appendix Into the Female Bladder to Supply an Absent Urethra," and "The Transplantation of Extra-Abdominal Fat for the Relief of Post-Operative Adhesions."

J. C. B.

Diseases of the Urethra and Penis. By E. D'Arcy McCrea, M.D., M.Ch. (Dub.), F.R.C.S.I., F.R.C.S. (Eng.), Honorary Surgeon at Salford Royal Hospital, Manchester. Price, $6.50. A William Wood Book. Baltimore: Williams and Wilkins Company, 1940.

THE author of this volume set out to give in some detail an account of present-day knowledge of diseases of the urethra and penis, and to provide as well a means of reference to the literature on this subject. A careful reading leaves the impression that his purpose has been attained to a most remarkable degree.

Though with the utmost restraint and economy of words, the author treats his subject thoroughly and completely. Accustomed as we are to the verbosity of medical writing, this volume stands out as a welcome relief. The author begins with a fine chapter on development and anatomy, and considers in order malformations, inflammations and infections, injuries and tumors—all briefly yet fully. The chapter on penis tumors is particularly well done.

One might take issue with some of the views expressed, especially in regard to the strength of silver solutions recommended for urethral inflammations. This reviewer believes they are much too strong. However, these differences are unimportant in a book as good as this. What is important is the fact that the author speaks from an extensive personal experience and knows how to express himself briefly and effectively. This book should be valuable to the general practitioner and student, for whom it is primarily intended. The illustrations (181 in number) are well done and the typography is excellent. A bibliography of references follows each chapter and there is a good index.

One cannot fail to pay tribute to the fine British courage and optimism of the author and his publishers in producing a work of this kind under the shower of Nazi bombs. The book was written in Manchester and printed in Bristol; and that tells the story.

A. L. W.

Gynecologic Operations. By Prof. Dr. Med. Heinrich Martius, Director of the University Women's Clinic, Göttingen. Authorized English translation by W. A. Newman Dorland, A.M., M.D., F.A.C.S. 404 illustrations, mostly colored. Chicago: S. B. Debour, 1939.

THIS work on gynecologic operations is splendidly presented and beautifully illustrated, especially the section on surgical anatomy. The first of six chapters deals with generalities, such as abdominal incisions and sutures, abdominal hysterectomy, operations for malformation of the uterus, operations of the uterine adnexa, concluding with the

abdominal correction of malpositions of the uterus. The second chapter is allotted to vaginal operations, the third to operative procedures for urinary incontinence. Chapter 4 treats curettage of the uterus, Chapter 5 describes hernia operations, and the concluding chapter discusses intestinal operations.

Some surgeons will disagree with the author's advice not to drain in cases of peritonitis due to ruptured appendix. On page 117 the author advises the removal of spilled pus with gauze; it is perhaps better, this reviewer believes, to use an aspirator instead of gauze sponges. The anatomy of the pelvic floor is very ably discussed and depicted. In the discussion of inguinal hernia no mention is made of high ligation of the sac or the importance of the use of the transversalis fascia.

Under the subject of resection of the colon the author does not mention the Mikulicz procedure, but rather speaks of the lateral anastomosis. Figures 351 and 352 depict bowel sutured to the peritoneum. Many surgeons will disagree with this practice. Perhaps the field of proctology is not as well handled as are other chapters.

All in all, this is a splendid book, containing much instructive material, well printed on good paper and substantially bound. It can be unreservedly recommended.

M. T.

Surgical Anatomy of the Head and Neck. By John Finch Barnhill, M.D., F.A.C.S., LL.D., and William J. Mellinger, M.D. Second edition. Baltimore: Williams & Wilkins Co., 1940.

THIS work, embellished with many original drawings by the author, represents a great deal of worthwhile effort. The following suggestions and corrections for future editions can, however, be pointed out.

On page 16 the external jugular lymph nodes are discussed. The glands in Figure 6 are labeled superior cervical nodes. If these terms are used interchangeably it would, perhaps, be well so to state. The author prefers to discuss the deep cervical fascia in two layers rather than in the usual three layers. In Figure 13 the buccopharyngeal fascia is not shown or mentioned; it seems that in a drawing of this type its importance should be stressed in the differential diagnosis of acute and chronic retropharyngeal abscess. Reference is made to Figure 19, page 37, "5a, thyroid gland sternohyoid muscle." The object here is not clear and should be clarified in a future edition.

Reference is made to the illustration on page 44; this is missing. Reference is made on page 49 to Figure 17; however, there is no indication of the descendens hypoglossi in the illustration. On page 83, third line, the author refers to the "musculo-scapular space;" no doubt he means musculo-capsular space.

However, in evaluating the book as a whole, these points fade into insignificance against the tremendous amount of splendid material so well presented. This book will be a welcome addition to the library of all who are interested in surgical anatomy and procedures.

P. T.

Recent Advances in Anesthesia and Analgesia. By C. Langton Hewer, M.B., B.S. (Lond.), D.A. (R.C.P. and S. Eng.), Anesthetist and Demonstrator of Anesthetics, St. Bartholomew's Hospital. Third edition. 132 illustrations. Philadelphia: The Blakiston Company, 1939.

IN the first part of this splendid volume the various anesthetic agents are thoroughly discussed. Not only the beginner in anesthesia, but the mature and experienced anesthetist as well, will find in this volume much to add to his knowledge. The chapter on intravenous anesthesia is a splendid contribution. The work is divided into 25 chapters, each replete with worthwhile, up-to-date material. Each chapter is followed by references. Those who are partial to spinal anesthesia will find the chapter on this subject complete and up-to-date.

If one must offer some criticism, he might point out some such things as Figure 102, in which a patient depicted in the thyroid position is shown in exaggerated hyperextension which puts the strap muscles excessively on tension and may render breathing difficult. Or one may point out that the use of cyclopropane in thoracic surgery has not been stressed sufficiently. More space could, perhaps, have been devoted to the subject of blood transfusion.

All in all, however, this handy volume should be in the possession of every one who uses anesthesia or who supervises those to whom anesthesia is entrusted.

P. T.

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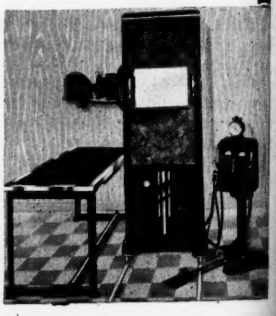
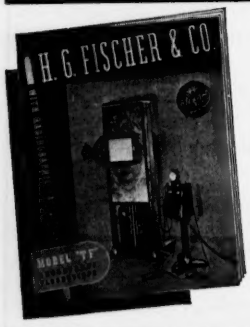
Here is shown the remarkable new FISCHER Model "TF" Shockproof Fluoroscope and radiographic apparatus that has created so great a sensation among physicians everywhere. Used without table it is a highest-quality vertical fluoroscope. With table (wall frame, wall-mounted cassett holder) this powerful apparatus provides virtually every service required in both horizontal and vertical radiography. Performance unexcelled by any competing unit.





FULL INFORMATION Without Obligation

Note illustration of apparatus in arrangement with table, also apparatus shown as vertical fluoroscope (without table) on front page of our large, 2-color descriptive folder. This folder will be sent to you promptly by return mail and without obligation.

● *Write or use post card. Simply say, "Send your large, descriptive folder on your new FISCHER Model "TF." No obligation.*

H. G. FISCHER & CO.

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